institute for sustainable futures

Review of the National Packaging Covenant

Version 1.4

Prepared by

Institute for Sustainable Futures

For

Nature Conservation Council of NSW

UNIVERSITY OF TECHNOLOGY SYDNEY

Institute for Sustainable Futures

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EXECUTIVE SUMMARY

The NSW Nature Conservation Council, with funding from the NSW Department of Environment and Conservation, commissioned the Institute for Sustainable Futures at the University of Technology, Sydney, to carry out an independent review of the National Packaging Covenant and the National Environmental Protection Measure for Used Packaging Materials ('the Covenant system'), in December 2003. This review was intended to evaluate the Covenant system's effectiveness in achieving both its stated objectives and broader environmental and social outcomes, including reduction in generation of packaging waste, specifically reduction in virgin materials used in packaging and a reduction in packaging material disposed to landfill.

The National Packaging Covenant (NPC) is a voluntary agreement between industry, the Commonwealth Government, most State Governments and some local governments, to reduce packaging waste. It is supported by a regulatory measure, the National Environmental Protection Measure (NEPM), designed to encourage brand owners to sign the NPC. The NPC came into effect in August 1999 and is due to finish in July 2004. It is currently the subject of three separate reviews, including this one[1]. The principle of a cooperative regulatory framework supported by a regulatory safety net is an appealing one, so there is a strong desire on the part of industry and some government agencies to provide the maximum possible opportunity for the NPC to demonstrate that it has provided benefits.

To determine the effectiveness of the Covenant system as a packaging policy, the researchers developed ten key performance criteria based on the NPC's own objectives and on national and international literature on packaging policies. These criteria sought to define the essential aspects of a policy that can effectively and cost-efficiently minimise waste created along the packaging supply chain. The Covenant system was evaluated against both the NPC's own stated objectives and those of a best-practice packaging waste policy. The criteria established were:

1. Reduction in generation of packaging waste
2. Compliance
3. Measurability
4. Transparency
5. Clear objectives
6. Shared responsibility
7. Cost-effectiveness
8. Consultation and participation
9. Education and communication
10. Administrative simplicity

This review has determined that the Covenant system is not an effective instrument for reducing the generation of packaging waste and therefore an alternative policy framework will be needed to achieve this goal. The evaluation is briefly summarised for each of the criteria.

[1] The National Packaging Covenant Council (NPCC) has commissioned Nolan-ITU to evaluate the NPC and the Local Government Association of Queensland has commissioned Meinhardt to undertake a second evaluation from the perspective of local government.

***1. Reduction in generation of packaging waste**:* The NPC does not explicitly refer to avoidance (which includes reduction) in the generation of packaging waste as an overall objective, but it does refer to aspects of reducing packaging waste in various clauses. Unclear and non-specific reporting requirements for the NPC and the action plans means it is not possible to determine from these data sources alone whether the Covenant system is achieving a reduction in overall packaging waste. This is a serious shortcoming. Analysis of other available data sources (including Euromonitor, 2003a, 2003b, 2003c, 2003d) suggests that generation of packaging is increasing and for some materials, recovery rates are decreasing, despite increases in kerbside collection tonnages in some jurisdictions (See Appendix B).

The emphasis on kerbside collection in the Covenant system means there are no adequate mechanisms or strategies to increase recovery in the away-from-home sector. This focus also means that a whole-of-system analytic and strategic perspective is not being employed. For example, the combination of light-weighting[2] and the move towards co-mingled collection to increase yields and reduce kerbside collection costs, are likely to be major contributors to the decline in glass recovery rates in NSW because of consequent increases in glass breakage and contamination.

***2. Compliance**:* The effectiveness of a policy instrument relies, at a minimum, on its ability to ensure a level of compliance. The Covenant system relies on the NEPM to ensure that companies sign up to the NPC. The NEPM has achieved this, as evidenced by the significant number of industry signatories. The lack of performance indicators, however, makes it difficult for signatories to demonstrate compliance beyond signing the Covenant and preparing an action plan, which are not, in themselves, meaningful in terms of packaging waste reduction. The NEPM has relatively good compliance measures: it requires brand owners who are subject to the NEPM to undertake and report on specified activities, such as recovery of the consumer packaging in which their products are sold. However, the operation of the NPC and the NEPM means it is highly unlikely that the provisions of the NEPM will ever be applied in the form of prosecutions, before the Covenant expires in July 2004.

***3. Measurability**:* The NPC requires all signatories and the Covenant Council to collect and monitor appropriate data. However, there is a lack of baseline data collection, coordination of data sets and standardised data collection requirements. There is no accurate, accessible and consistent measure of trends, such as light-weighting[3] or packaging re-design, that impact on packaging waste generation and diversion from landfill. That which exists, some of which is reported by Jurisdictional Recycling Groups under the Covenant system reporting requirements, focuses on kerbside recycling. It does not provide information on recovery rates, that is, the recovery and recycling of materials as a proportion of the amount produced. A specific and major flaw is that away-from-home generation and recovery of packaging waste is not included in the reporting. The lack of a consistent, independently verified data set for the production, disposal and recycling of packaging waste is a major impediment to its management and minimisation. After four years of operation, this is a major indictment of the Covenant system's efficacy and usefulness in meeting its own goals, or any reasonable goals expected of a regulatory (or quasi-regulatory) framework for packaging waste.

***4. Transparency**:* Transparency requires that appropriate accountability systems and procedures are in place to support the objectives of the policy framework. This can include regular public reporting and the provision of easy access to information and this includes effective and meaningful public participation in these processes.

The Covenant system requires signatories to produce publicly available and accessible action plans. These action plans are intended to report on how responsibilities under the NPC have been implemented by each signatory. However, due to the lack of specificity of these

[2] The reduction in mass of packaging per volume of product contents.

[3] Light-weighting data is only supplied for the beverage industry (BIEC, 2003).

responsibilities and despite references in the NPC and in Schedule 1 to the need for development of performance indicators, there is no requirement for the kind of reporting needed to provide transparent data on progress towards a collective goal of reducing the generation of packaging waste.

***5. Clear objectives**:* The objectives in the NPC are general, notably in relation to: shared responsibility; the generation of 'real and sustainable environmental benefits in a cost effective manner'; and the establishment of a 'forum for regular consultation and discussion'. These objectives are not defined in practical terms, that is, in ways that suggest outcomes or lend themselves to performance monitoring. The lack of quantifiable or measurable objectives, expressed as a collective goal for signatories, leads to industry uncertainty in terms of expectations beyond NPC membership administrative requirements and the submission of action plans.

***6. Shared responsibility**:* The NPC clearly identifies shared responsibility as the key principle behind the Covenant. However, the focus of the NPC has been on kerbside collection of recyclables by local government. Genuine shared responsibility is not being achieved, with local government and ratepayers still bearing the major proportion of the financial costs of kerbside recycling. The financial contributions by brand owners through the Covenant system processes are insignificant (less than 2%) as a proportion of the net costs incurred by local government of kerbside recycling. Packaging industry activities often associated with NPC processes and objectives, such as light-weighting and packaging redesign to minimise materials use and waste, in most cases provide net financial benefits to those industries.

The financial costs and benefits of kerbside collection are reasonably well documented and characterised. In contrast, the net costs to industry in the form of support for recycling by establishing recycling facilities and over market value payments for recyclate are more difficult to characterise and verify, due to the constraints of commercial confidentiality. They are unlikely to match the contribution of ratepayers (via local government) to kerbside recycling. The contribution by ratepayers is estimated to be $158M net cost (per annum) to local government nationally for kerbside recycling, plus a similar amount nationally for local government litter management, while estimated contributions to kerbside recycling through industry transitional payments comprise up to $3M per annum.

***7. Cost-effectiveness**:* The NPC's objectives acknowledge that management of packaging should be undertaken in a 'cost effective manner' using 'life cycle management'. The Independent Assessment of Kerbside Recycling in Australia (Nolan ITU/SKM Economics, 2000), commissioned by the Covenant Council, quantifies the benefits of kerbside collection and recycling of packaging materials (principally used containers). Covenant funding focuses on kerbside recycling and specifically on reducing its costs and increasing its yield.

However, there has been no analysis of the relative cost effectiveness of holistic strategies to reduce packaging waste. In the Nolan ITU/SKM Economics study (2000) and a Victorian equivalent (Grant et al. 2001), analysis of the costs and benefits of the collection of waste packaging materials from the away-from-home sector were specifically excluded. This represents a serious omission. The away-from-home sector represents half the total packaging waste generated for some major categories such as beverage packaging, which in turn represents approximately 50% of packaging waste generated (See Appendix A). There is a danger that the analysis being undertaken and the policy actions flowing from it are attempting to optimise a *sub-system* (i.e. kerbside recycling) but resulting in a less than optimal *system* (for recovery of packaging waste in total). Two independent studies (one in Australia, one in the United States) of the use of deposit and refund systems as a means of increasing recovery rates for beverage packaging, found that unit costs (¢ per container, or $ per tonne) were lower than kerbside systems alone and could help to reduce the net costs of kerbside collection (ISF, 2001; Beck et al., 2002).

***8. Consultation and participation**:* Consumer packaging, waste and recycling are issues of great interest to the community as well as the many other stakeholders involved. There are also significant environmental and social costs associated with the generation and disposal of packaging materials. These suggest there is a need for robust consultation with all stakeholders, including citizens. This has been demonstrably lacking during the development of the Covenant system, as well as in its operation. There was no participatory decision-making process involving citizens in the development of the Covenant system. Perhaps significantly, there was no such consultation regarding the choice of this policy framework for regulating packaging waste. This is despite there being a significant body of research (see BIEC 1997b and ISF 2001: Vol.III), which indicates a sizeable majority of Australian citizens would prefer government involvement in regulating packaging waste and a greater sharing of costs between producers and consumers, as well as the use of market-based instruments such as deposit and refund systems, to increase recovery of packaging waste.

Non-government organisations (notably peak environment organisations or consumer groups) were not involved in negotiating the NPC and, as is now well documented, many local governments have not been involved despite the importance of this sector in the packaging chain. While the three current reviews of the Covenant system involve some stakeholder consultation and public forums, they do not incorporate public participation in the stronger sense in which citizens are engaged through representative and deliberative processes. (see Carson & Gelber 2001). The lack of appropriate engagement of citizens and interested stakeholders in the development, operation and review of the Covenant system is inconsistent with the principles of open government, as well as the spirit of shared responsibility implied in the Covenant agreement.

***9. Education and communication**:* The NPC suggests that action plans refer to efforts to 'undertake education and community awareness programs' about the Covenant system. This is an important component of any such policy framework and applies to communications within signatory organisations, between stakeholders and to the wider community. Stakeholders' views on the performance of the Covenant system in relation to this criterion are mixed, with some industry representatives stating that the Covenant requirements have increased the level of awareness of packaging-related issues within companies, while others suggest this has been limited. A packaging-policy framework that aimed to increase general awareness within industry and the community about the goal of reducing packaging waste would require a number of components. These are: a national program or strategy, with clear goals and measurable outcomes about community awareness-raising; support for industry in the form of information and advice on cleaner production and design for the environment, and support at the local government level on household education. The Covenant system has not provided such a national program or strategy on education and communication in relation to packaging waste.

10. Administrative simplicity: The administrative aspects of the Covenant system focus on increasing the number of and sectoral coverage of signatories, preparing and review of action plans, and collecting and disbursing funds for agreed purposes. The administrative costs for accomplishing these tasks, as indicated by the number of people employed in these roles and the effort required, are modest. However, there are a large number of organisations involved in the administration of the NPC, none of which takes a coordination role. If this criterion is considered specifically in the context of a packaging waste reduction policy, the structure is unnecessarily complex and lacks central coordination. In addition to the large number of organizations, each performing one specific and separate function, there is a lack of focus for the administrative effort. Instead of concentrating on the concrete outcome of reducing packaging waste, the administrative structure is concerned with increasing the number of signatories and ensuring the delivery of action plans. Both these are indicators of the NPC's success within its own terms, however, neither demonstrates waste reduction. A simpler, centralised and coordinated administrative structure would achieve smooth and effective

delivery of waste policy objectives and conversely, clearer waste policy objectives would lend themselves to a simpler administrative structure.

CONCLUSIONS AND RECOMMENDATIONS

The National Packaging Covenant has not been performing satisfactorily as a packaging policy framework designed to reduce packaging waste generation and increase overall used-packaging recovery. While it may be responsible for achievements by individual signatories, the overall achievements are not substantial enough to recommend the continuation of the NPC as it stands. Thus, specific recommendations are made for developing a new, national, simplified and stronger packaging policy framework, involving the setting of objectives and targets, compliance and measurability.

It is recommended that the NSW DEC, in its deliberations on the future of the Covenant system, take a leadership role in developing a national regulatory approach to packaging waste by:

- specifying clear goals and outcomes for packaging waste as a whole
- including sector-based targets for the reduction of packaging waste to landfill and the reduction of resources and virgin materials used in packaging.

Examples of targets for sectors might include an 85% target for recovery of used beverage containers, similar to the target established in British Columbia and commensurate with recovery rates in South Australia. The Dutch Packaging Covenant (OECD, 1998) sought to achieve a target of 60% recycling of disposable packaging, to reduce packaging levels to 1986 levels and to prohibit packaging disposal to landfill by 2000.

Such an approach would require a national packaging strategy that incorporates the following policy action areas:

- a framework for effectively ensuring compliance, potentially using the NEPM;
- clear, measurable targets for reducing packaging waste generated, by industry sector and waste type;
- a process for public participation and stakeholder consultation in the development of the strategy. The process is designed to influence the formulation of the objectives, scope and targets;
- a process for monitoring and data collection and reporting of progress against targets; and
- a national education and communication strategy, aimed at the community, industry and local governments.

The development and implementation of such a national strategy would need to be undertaken in such a way as to meet the ten performance criteria identified in this report. This means the following issues would need to be addressed in the strategy:

1. Reduction in generation of packaging waste

Strong, achievable targets, which are progressively raised over time, need to be set to reduce generation of packaging waste and the recovery and productive reuse or recycling of packaging, based on the best available life cycle analysis. This is consistent with OECD recommendations, which suggest that Australia focus on preventative measures that seek to reduce waste production, including better use of raw materials and energy (OECD, 2000a). For example, a target of 85% recovery of beverage packaging, the largest single component of the packaging waste stream, would be appropriate, based on research previously undertaken (ISF, 2001) and international practice. The strategy will need to ensure that the away-from-home sector is addressed, as well as transport and secondary packaging. Targets should consider international best-practice, because Australia is currently considered a large

generator of waste and a poor performer overall in recovery of recyclables, compared to many other OECD countries (OECD, 2000a).

2. Compliance

An enforceable compliance system is a vital component to validating a regulatory or quasi-regulatory system. Penalties should be sufficient to act as a deterrent. Clear processes should be outlined to address non-compliance by signatories. The system should be clear about what is to be complied with and this should be guided by the collective goal of reducing packaging waste. The focus of compliance should go beyond the current priority of increasing the number of signatories and the preparation of action plans.

3. Measurability

Implement a consistent reporting framework for measuring the generation of packaging waste and the recovery, recycling or reuse of used packaging materials for each sector, measured against set targets. This reporting framework will include key performance indicators for each sector, the type of data required for each criterion and the period of reporting.

Construct a set of baseline data on trends for the production, disposal, collection and productive reuse and recycling of packaging, by material and by sector for the period of the existing Covenant (1999 to 2004). Collect this data using the same methodology, units and timeframe, to build a national database that is regularly updated, such as the planned update of the Australian Waste Database (AWD). The need to strengthen the AWD is supported by OECD recommendations for Australia, which are aimed at overcoming the lack of reliable, comprehensive information on the quantity and composition of waste streams. Provide clear definitions of packaging waste and any assumptions in order to limit the data requirements for secondary packaging.

4. Transparency

Establish a transparent and public reporting system for indicators of packaging generation and the recovery and fate of used packaging materials. Require information about the amount of funds currently held by the National Packaging Covenant (Transitional Funding) Industry Association, the criteria for allocating funds to projects and the outcomes of the projects to be reported and publicly available and accessible.

5. Clear objectives

Establish clear objectives through a robust process of public participation, with input from stakeholders and informed by the knowledge and research base that has been developed over recent years. Outcome-related[4] objectives should be measurable in order to evaluate the progress or effectiveness of the packaging waste policy.

6. Shared responsibility

A Life Cycle Assessment should be conducted of waste reduction options, so that the choice of options can assist in distributing the costs and responsibilities equitably along the packaging supply chain. Current financial losses borne by ratepayers (via local councils) for kerbside recycling should be reduced by establishing other collection routes, such as retail

[4] As opposed to process-related objectives.

outlets and collection centres, for high volume, low value materials (e.g. glass and plastic containers). Establish a mechanism to collect used packaging material from the away-from-home sector and ensure that brand owners and retailers contribute to such a system in an equitable way.

Develop an approval system for accepting new products and packaging into the market. This will involve discussion with local government and the recycling industry regarding the recyclability of the product and potential for increased reuse.

7. Cost-effectiveness

Consistent with OECD (2000) recommendations for improving cost-calculation methods, broaden existing research on the costs and benefits of various packaging waste reduction options, to firstly, include impacts along the entire life cycle of packaging products and secondly, to consider non-financial impacts such as environmental and social costs and benefits. Including these will facilitate considering options to manage waste from other sectors, such as away-from-home and transport packaging. Specifically, using life cycle analysis, investigate the benefits of moving up the waste hierarchy from recycling in terms of reuse of used packaging including refillable beverage containers. This will test the conclusions arising from European LCA studies, which indicate a significant advantage of reuse relative to recycling.

Commission research, using verifiable data on collection and sorting, to quantify trends in contamination rates and to investigate the impact of co-mingled kerbside collection on these rates.

8. Consultation and Participation

Implement a robust public participation process to guide the development of the strategy. Public participation should contribute to the formulation of objectives, scope and targets. Such consultation processes must ensure the representation of a cross section of citizens and which incorporate deliberation (see Carson & Gelber, 2001).

9. Education and Communication

Develop a national education and communication strategy aimed at the community, at industry and local government level.

This strategy should ensure that consumers are informed about the impact of their purchasing choices at the point of sale.

Ensure that such a strategy is integrated with, is informed by and does not duplicate, past and current local, State and Commonwealth government initiatives on cleaner production, eco-efficiency, design for the environment and public communication.

10. Administrative simplicity

Implement administrative procedures that are as simple as possible for utmost effectiveness. Ensure these administrative procedures are directed toward the objectives of the packaging waste policy, that is, a reduction in the generation of packaging waste. Include clear reporting requirements and exemptions.

LIST OF ABBREVIATIONS

ACCC	Australian Competition and Consumer Commission
ABS	Australian Bureau of Statistics
CBA	Cost Benefit Analysis
cl	clause
DEC	NSW Department of Environment and Conservation (formerly NSW Environment Protection Authority)
EPHC	Environment Protection and Heritage Council
EPP	Extended Public Participation
EPR	Extended Producer Responsibility
ESD	Ecologically Sustainable Development
FAB	Flavoured Alcoholic Beverage
IPP	Integrated Product Policy
IWRP	Industry Waste Reduction Plan
LCA	Life Cycle Assessment
LGA	Local Government Area
LGov	Local Government and Shires Association of NSW
NCC	Nature Conservation Council of NSW
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NPC	National Packaging Covenant
NPCC	National Packaging Covenant Council
OECD	Organisation for Economic Co-operation and Development
PCA	Packaging Council of Australia

GLOSSARY OF KEY TERMS

Away-from-home	For the purpose of this report, away-from-home refers to packaging products consumed and disposed of (or dealt with otherwise) in the public place sector.
Brand Owners	'a person who is the owner or licensee in Australia of a trade mark under which a product is sold or otherwise distributed in Australia, whether the trade mark is registered or not; in the case of a product which has been imported, the first person to sell that product in Australia; in respect of in-store packaging, the supplier of the packaging to the store' (NEPM, 1999)
Bulk packaging	Larger packages that contain the individual container items for storage and transport.
Consumer packaging	All products made of any material, or combination of materials, for the containment, protection, marketing and handling of retail consumer products. It includes bulk packaging that contains multiple units of a product intended for consumer use (NPC, 1999, c l2).
The Covenant system	Refers to both the NPC and NEPM collectively as a system.
Extended Producer Responsibility (EPR)	The producer's responsibility for a product (including physical or financial responsibility) is extended to the post-consumer stage of the product's life-cycle (*Waste Avoidance and Resource Recovery Act*, 2001, Section 15)
Kerbside recycling	A formalised kerbside collection system for recyclables from households, where the generator segregates wastes according to material type and places them in containers on the kerbside for separate collection. The system is usually administered by local government authorities (Resource NSW, 2003).
Life Cycle Assessment (LCA)	An approach that studies the entire environmental effects of a product or material from production to disposal. With respect to waste management, LCA considers all aspects of resource use, waste generation, storage, transport, treatment and disposal.
Light-weighting	Reducing the mass of packaging required per volume of contents.
Mandatory mechanisms	Legally binding policy mechanisms such as legislation, regulations and ordinances. Mandatory mechanisms require a formal authority (usually a government body) to ensure compliance and enforce sanctions.

Off-trade	Beverages consumed away from the premises from which they were purchased (eg. at home).
On-trade	Beverages consumed on the premises from which they were purchased, eg cinema, restaurant.
Packaging	See 'Consumer Packaging'
Paper (household)	Household paper means writing paper, cardboard and mixed paper, other than paper used to publish newspapers or magazines, which forms part of the domestic and municipal waste stream (NPC, 1999, cl2).
Polluter Pays Principle	The Polluter Pays Principle expands private sector responsibility for the conservation of resources and pollution reduction (OECD, 1998, p2). It is the notion that those who generate or handle pollutants should bear the costs of damage to the environment (Commonwealth EPA, 1992, p12).
Producer	The party with the greatest control over the selection of materials and the design of the product. It can be the manufacturer, brand-owner, importer, or filler (OECD, 2001).
Producer Responsible Organisation (PRO)	Under an EPR system, such as mandatory take-back or deposit refund, a third party, often industry based, is set up to allow producers to collectively manage and collect their used products and product containers, in addition to managing the funds of the system. Such industry-based third party organisations are often referred to as Producer Responsibility Organisations (PRO).
Product chain	The production process from raw material extraction to waste management of a product. This will involve importers, fillers, distributors, brand name holders, manufacturers, retailers, consumers, collectors and waste managers.
Product stewardship	An ethic of shared responsibility for the lifecycle of the product through to and including its ultimate disposal. (NPC, 1999, p3).
Recovery rate	The proportion of end-of-life product recovered for recycling and reuse.
Recyclate	Used packaging that is available to be recycled.
Reduction in generation of packaging waste	For the purpose of this report, the reduction in the generation of packaging waste is an 'avoidance' measure, the highest priority in the Waste Hierarchy (see below) according to the NSW Waste Strategy 2003. Reduction in the generation of packaging waste includes both reducing the amount virgin materials used in packaging and the amount of packaging waste disposed of in landfills.

Retailer	A person or organisation that sells a product to a consumer.
Shared Responsibility	Shared responsibility for the life cycle of products including the environmental impact of the product from the extraction of virgin materials, to manufacturing, to consumption and through to and including ultimate disposal and post-disposal consequences (Resource NSW, 2003, Section 15).
Stakeholder	For the purpose of this review, stakeholder refers to any party in the packaging chain, including all spheres of government (Commonwealth, State and Local), the packaging industry, retailers and consumers.
User Pays Principle	The user pays principle resembles the polluter pays principle, in that the users of a product or service are financially responsible for its environmental costs. See *Polluter Pays Principle*.
Voluntary mechanisms	Mechanisms initiated by industry, government, or multi-stakeholder partnerships. Participation is on a voluntary basis and not legally binding. Voluntary EPR mechanisms are most popular in North America.
Waste Act 2001	*Waste Avoidance And Resource Recovery Act* 2001
Waste hierarchy	*According to the NSW Waste Strategy 2003,* the Waste hierarchy in descending order is: • ***Avoidance*** - including strict avoidance, reduction at source and product re-use. • ***Resource Recovery*** - including composting, recycling and energy recovery. • ***Disposal*** - including landfilling.
Waste Strategy 2003	NSW Waste Avoidance and Resource Recovery Strategy (Resource NSW, 2003)

1 BACKGROUND: NATIONAL PACKAGING COVENANT

1.1 Background: Setting the Scene

Over the past decade, there has been growing awareness both in Australia and internationally that the environmental impacts of packaging extend beyond the post-consumer stages, further up the packaging chain towards production (OECD, 1998, 2001; Commonwealth EPA, 1992; Resource NSW, 2003). There is a general consensus among all levels of government, industry and researchers that a life cycle approach to waste management, one that tracks waste from 'cradle to grave', or source to disposal or reuse is required.

Consumer packaging is a sub-category of products, which in turn is a sub-category of overall materials use. This is depicted in *Figure 1*. As a further sub-category of consumer packaging, food and beverage containers represent the majority (approximately 65–70%) of packaging (PCA, 1999). It is estimated that the ratio of beverage containers to food packaging is approximately 71:29 (See Appendix A).

Figure 1: Context of packaging waste.

The change in understanding of waste issues, evolving from litter, to landfill and recently to the energy, resource and pollution issues associated with the production of materials, has led to several key studies being undertaken to develop robust life cycle assessment methods for packaging waste. In 1992, the Tellus Institute undertook a comprehensive analysis of the costs and benefits of packaging waste, including estimates of the social and environmental costs (Tellus Institute, 1992). This was followed by the Nolan–ITU/SKM Economics study in 2000, which addressed kerbside recycling in Australia using a comprehensive life cycle approach and environmental valuation (Nolan ITU/SKM Economics, 2000). This was followed by a similar Victorian study (Grant et al. 2001). In 2001, the Independent Review of Container Deposit Legislation in NSW (ISF, 2001), built on the methodology and results of the two previous studies by Tellus Institute (1992) and Nolan ITU/SKM Economics (2000) to develop a whole-of-society cost-benefit analysis of CDL.

The National Packaging Covenant (NPC) was adopted in 1999 amidst these developments in life cycle analysis and acknowledges the need for 'effective life-cycle management' (cl 1 NPC, 1999) and 'an ethic of shared responsibility' (cl 4, NPC 1999) as central to its objectives. Life cycle approaches have been used to address environmental impacts from

virgin material extraction, energy consumption, greenhouse gas generation from transport, water consumption, generation of by-products, landfilling and illegal disposal, as identified in Figure 2. Each of these environmental impacts has associated economic costs to varying degrees, such as the transportation of materials and products along the chain.

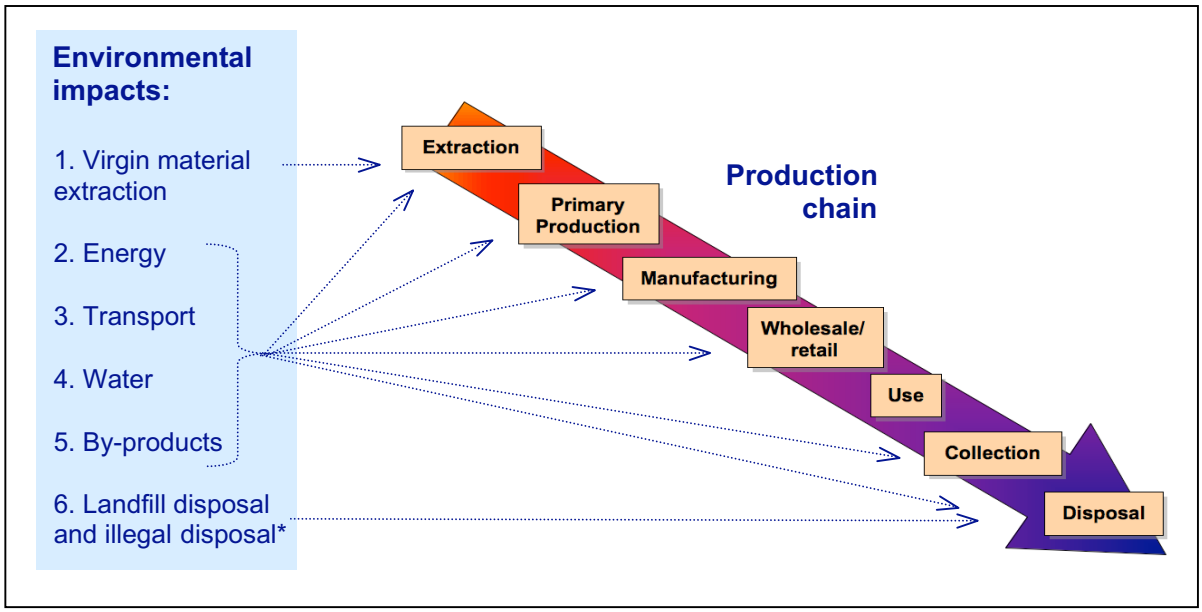

Figure 2: Environmental impacts of consumer products throughout an open-loop product chain

**illegal disposal includes littering and dumping*

The NPC is a voluntary agreement between 'all spheres of government and the packaging supply chain' (Resource NSW, 2003, p.16), however, the Australian Local Government Association and the Local Government Association of NSW have consistently opposed the NPC because of its focus on kerbside recycling as a solution and its foundation on 'product stewardship' which they see as weaker than 'extended producer responsibility' (Resource NSW, 2003).

Following adoption of the NPC, the NSW Government commissioned an independent inquiry into container deposit legislation and a review of the principles, policy and practice of extended producer responsibility. The latter review informed the development of the *Waste Avoidance and Resource Recovery Act 2001* and the *NSW Waste Avoidance and Resource Recovery Strategy 2003*. These policy tools identify four key outcome areas for future direction, notably:

- avoiding and preventing waste;
- increased use of renewable and recovered materials;
- reduced toxicity in products and materials; and
- reducing litter and illegal dumping.

The *NSW Waste Avoidance and Resource Recovery Strategy* prioritises action further up the waste hierarchy (OECD, 2001), such as strict avoidance, reduction at source and product re-use (See Figure 3). It considers actions such as resource recovery (including recycling, composting, energy from waste), as lower priority actions (Resource NSW, 2003, p.30). Both product stewardship and extended producer responsibility are identified as key elements of the *Waste Avoidance and Resource Recovery Act 2001*. Both the Act and the Strategy encourage industry to manage their waste under a voluntary scheme and note that EPR

schemes may be mandated only where industry is not effectively managing its wastes (Resource NSW, 2003, p.96; *Waste Avoidance and Resource Recovery Act* 2001, Part 4).

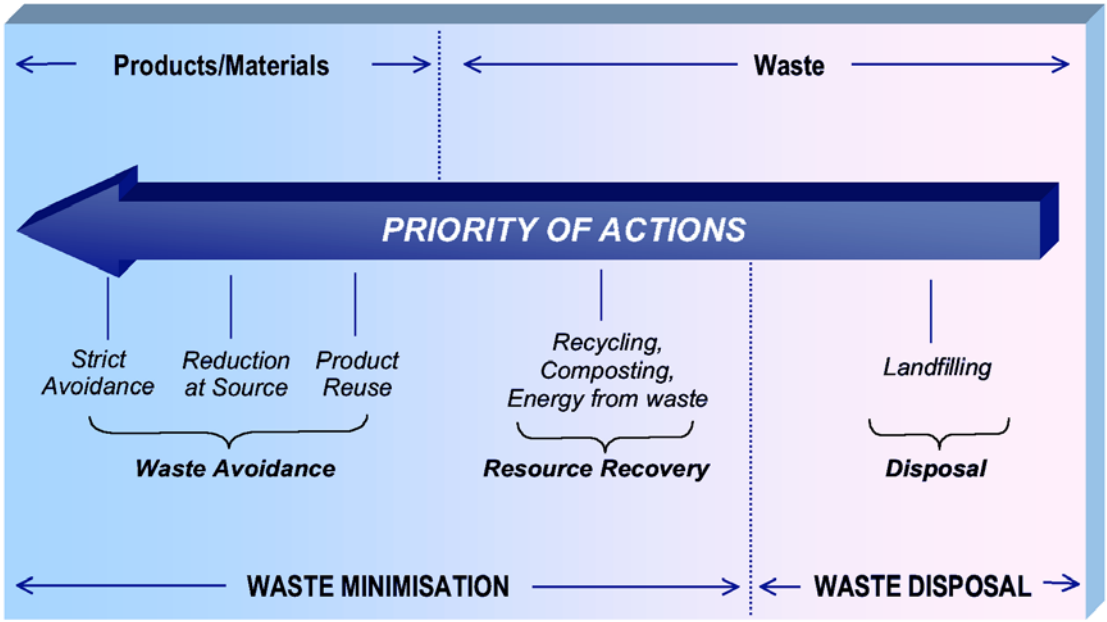

Figure 3: Waste prevention and avoidance in context.

Source: NSW Waste Avoidance and Resource Recovery Strategy, 2003 p30, adapted from Stutz in OECD 2000, p38).

As part of its statutory responsibility under the Act, the NSW Department of Environment & Conservation (formerly NSW EPA) released a consultation paper on Extended Producer Responsibility (EPA, 2003). This paper identified 16 waste categories of concern, which the EPA considered suitable for EPR action, with 8 of these being nominated for priority focus over the next 12 months. Packaging waste was one of the 8 wastes prioritised for focus, as it has a post-consumer scheme in place that the EPA intended to monitor and evaluate for its effectiveness. This post-consumer scheme is the Covenant system. According to the Act, as indicated in the EPA's EPR consultation paper, the Minister can only implement an EPR scheme after considering: "whether there is an existing national scheme which adequately addresses waste' and 'whether there is an effective voluntary scheme in place which is able to achieve outcomes and is being actively implemented, monitored and reported on" (EPA, 2003, p.4). However, the EPA consultation paper was published before the three current reviews on the effectiveness of the NPC.

1.2 The Covenant System

The Covenant system is a national initiative adopted in 1999 by the then Australian and New Zealand Environment and Conservation Council (ANZECC)[5] and subsequently signed by State and Territory Governments (excluding the Northern Territory), some local governments and representatives of the packaging supply chain. It aims to manage used packaging and paper products and fund a sustainable kerbside recycling system. It refers to the principles of "shared responsibility", commonly known as "product stewardship", as the framework for the life cycle management of used packaging. The principle of product stewardship is understood to mean "an ethic of shared responsibility for the life cycle of products, including the

[5] Now the Environment Protection and Heritage Council (EPHC).

environmental impact of the product through to and including ultimate disposal'[6] This responsibility would in principle apply throughout the chain of supply, from raw material suppliers to retailers, up to and including the final disposal of waste packaging. The consequences of this principle are that all participants of the packaging chain—raw material suppliers, designers, packaging manufacturers, packaging users, retailers, consumers and all spheres of government and collection agencies—accept responsibility for the (environmental) impacts associated with their sphere of activity[7].

The Covenant system has two tiers. The National Packaging Covenant (NPC) provides the primary framework. The NPC is a voluntary agreement describing relevant product stewardship principles throughout the packaging chain and what this means for signatories in relation to consumer packaging and household paper. It requires signatories to produce an action plan to report their performance against the Covenant. It also outlines funding arrangements entered into by the packaging supply chain signatories for the kerbside collection and recycling system.

The second tier of the Covenant system—the National Environment Protection (Used Packaging Materials) Measure (NEPM)—is designed to act as a safety net for the NPC. The NEPM covers non-signatories to the NPC, or industries which have not satisfied participating jurisdictions that arrangements exist for the industry to produce outcomes equivalent to those intended by the Covenant (cl 11, NEPM, 1999). Under the NEPM, each jurisdiction is required to regulate non-signatories. Its intent is to ensure that environmental outcomes intended by the NPC are achieved (cl 4, NEPM, 1999) and that signatories to the NPC do not suffer any competitive disadvantage as a result of fulfilling their commitments under the Covenant (cl 5(5), NEPM, 1999).

1.3 National Packaging Covenant

The three objectives of the NPC are to establish[8]:

- a framework based on the principle of shared responsibility for life cycle management of consumer packaging and household paper;
- an approach that is collaborative so that management of packaging and household paper and implementation of collection systems produces "real and sustainable environmental benefits in a cost effective manner";
- a forum for regular consultation and discussion of issues and problems.

The NPC covers the management of consumer packaging[9] and household paper[10], excluding paper used to publish newspapers or magazines[11]. Consumer packaging is defined as "all products made of any material, or combination of materials, for the containment, protection,

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[6] See cl 4 Product Stewardship of The National Packaging Covenant; also see cl 3 Definitions, in National Environment Protection (Used Packaging Materials) Measure, 2 July 1999.

[7] See cl 4 *Product Stewardship* of *The National Packaging Covenant.*

[8] See cl 2 *Objectives and Scope of the Covenant*, *The National Packaging Covenant.*

[9] Consumer packaging is defined in the Covenant as "all products made of any material, or combination of materials, for the containment, protection, marketing and handling of retail consumer products. It also includes bulk packaging that contains multiple units of a product intended for consumer use". See http://www.packcoun.com.au/NPC.htm. Also see section 3 *Definitions* of National Environment Protection Measure.

[10] Defined in the Covenant as "writing paper, cardboard and mixed paper, other than paper used to publish newspapers or magazines, which forms part of the domestic and municipal waste stream". See http://www.packcoun.com.au/NPC.htm. Also see section 3 *Definitions* of National Environment Protection Measure.

[11] The *Covenant* & *NEPM for Used Packaging Materials* do not cover newspaper products and recycling - this sector has parallel industry & government initiatives such as a national industry waste reduction agreement which that broadly reflects the principles of the Covenant and will expire in 2000. Currently around 72% of old newspaper is being recycled in Australia (PNEB, 2002). See cl 2 *Objectives and Scope of the Covenant, The National Packaging Covenant.*

marketing and handling of retail consumer products. It also includes 'bulk packaging that contains multiple units of a product intended for consumer use' (see cl 2, NPC, 1999; cl 3, NEPM, 1999).

Signatories to the Covenant are Commonwealth and all State Governments except the Northern Territory, some local governments[12], packaging supply chain companies[13] and relevant industry associations[14]. Signing up is not obligatory. The Australian Local Government Association and NSW Local Governments, for example, have not signed the NPC.

The Covenant has a term of five years, which commenced on the 27th August 1999 and expires in August 2004 (cl 8, NPC, 1999). It may only be amended by agreement of EPHC and with unanimous agreement of the Covenant Council to take account of significant environmental, economic, industry and/or social changes (cl 7, NPC, 1999).

The body of the NPC outlines the principles underpinning the Covenant and the roles and responsibilities of signatories.

1.3.1 Principles

The principle of product stewardship requires sharing responsibility for the life cycle of a product from production through to disposal. The Covenant suggests what this may mean for the various sectors of the packaging chain—raw material suppliers, designers, packaging manufacturers, packaging users, retailers, consumers, all spheres of government and collection agencies—and for the various stages of product life: the design, production, distribution, disposal, research, market development, labelling, manufacturing and retailing of a product. The areas outlined in the NPC are not prescriptive and only apply to signatories 'as appropriate'. Generally the application of the principle is expressed so that minimisation or reduction of materials has been considered and undertaken where optimal (cl 4, NPC, 1999).

1.3.2 Responsibilities

Under the Covenant, all signatories undertake to do the following:

- produce an action plan detailing how environmental outcomes are to be achieved with respect to packaging;
- adopt appropriate waste management pricing policies and to provide appropriate financial and other support to optimise kerbside recycling systems;
- apply principles of the Covenant in their own operations;
- work cooperatively to develop best practice systems and develop end markets for secondary materials;
- coordinate education and promotion programs and establish an accessible communications framework to facilitate information collation and dissemination;
- facilitate development of formal market trading structures that optimise the price of recycled materials;

[12] Representatives of local government – Municipal Association of Victoria and Association of Regional Waste Management Groups. See cl 10 *Signatories* in *The National Packaging Covenant*.

[14] These are: Amcor Ltd, BHP Packaging Products, Coca-Cola Amatil (Aust); Cryovac Australia; Kaal Australia; National Can Company; Pepsi Cola Bottlers Australia; SIGNUM; Unilever Australia; Visy Industries; Carlton & United Breweries Beer Business; Polystyrene Australia; Montel; with Letters of Intent by: ACI Glass Packaging Australia; Schweppes Cottee's Division of Cadbury Schweppes; and Van Leer Australia. See cl 10 *Signatories*.

- seek wider recognition and implementation of the Environmental Code of Practice for Packaging.

For industry signatories, this specifically means undertaking to design packaging that minimises use of materials and eliminates excessive packaging (cl 5.5, NPC, 1999). No specific undertaking is made by industry signatories to collect data or report on measurable benchmarks, although this is implied by 'apply principles of Covenant in their own operations'. Under the Covenant's principle of product stewardship, those involved in manufacture, use and retailing of packaged products undertake to "collect data and report on developments in packaging and the quantities of packaging produced" (cl 4, NPC, 1999). The nature of the data to be collected is not specified in the Covenant or anywhere else.

Another key undertaking by industry signatories is to financially contribute to a kerbside collection system (cl 5.5, NPC, 1999). As suggested above, the Covenant recognises the importance of developing markets for recyclable materials to sustain recycling systems and it calls for frameworks by all signatories to be 'established to ensure that new product development using secondary materials is accelerated and inappropriate barriers to marketing of recycled materials … removed'. (cl 4, NPC, 1999).

All spheres of government in turn, specifically agree to undertake those activities relevant to the late stage of product life cycle, that is resource recovery and recycling strategies. For example, governments undertake to cooperate in producing reliable data on a national basis on the performance of disposal and kerbside recycling systems dealing with used packaging and paper, identify and seek to remove barriers to the purchase of recycled goods and services and facilitate implementation of purchasing policies for recycled goods and services. State and Commonwealth Governments will specifically promote, support and fund market development initiatives (cl 5, NPC, 1999).

Local governments specifically undertake to implement kerbside collection principles as specified in Schedule 2 of the Covenant.

1.3.3 Monitoring and review

Under the NPC, two bodies have been established to monitor and oversee the NPC and kerbside recycling issues (cl 6, NPC, 1999).

The Covenant Council has overall responsibility for the implementation and management of the NPC. The Covenant Council membership comprises senior representatives of signatories from Australian jurisdictions of EPHC, local government and the packaging supply chain and representatives of any other bodies agreed to by all parties. The NPC is thus self-managed, as Council members are also Covenant signatories.

The Covenant Council's management responsibilities include registration and assessment of action plans, including their validation and determination for compliance. How this will be done is not specified or clear in the NPC. The Council is responsible for developing performance indicators and establishing a complaints procedure mechanism (cl 6, NPC, 1999) but this has yet to occur.

The national Kerbside Recycling Group (KRG), to which the state-based Jurisdictional Recycling Groups report, itself reports to the Covenant Council. It is self-managed, in that members of the Group comprise representatives of state jurisdictions, local government and the packaging supply chain. It considers financial issues affecting kerbside schemes, current circumstances concerning prices paid for secondary materials, advises Ministers on how best to deal with price fluctuations, monitors progress of local government in adopting preferred practice and measures to increase efficiency, monitors the scale, nature and likely future

direction of net cost to local government of kerbside recycling and considers appropriate performance indicators.

1.3.4 Action plans

The NPC requires each signatory to submit an action plan detailing how the signatory proposes to implement its responsibilities under the Covenant (Schedule 1, NPC, 1999). No information protocols or uniform guidelines are provided in relation to action plans. Signatories may choose to report on a number of options in Schedule 1 'as appropriate' in their action plans. Individual signatories have discretion about what to report and in what format. The following are potential options, as listed in the NPC:

- establish measurable performance objectives and mechanisms;
- commit to continuous improvement of environmental and waste minimisation outcomes;
- develop/review material specifications for use of recycled products;
- support kerbside collection and other recovery systems;
- implement best practice collection principles;
- contribute to R&D into product design to reduce waste;
- support the development of markets for the use of recovered and recycled material;
- provide labels and information for the community about waste minimisation;
- undertake education and community awareness;
- cooperate in the collection of relevant data on a national basis; and
- alter logistics systems to reduce environmental impact.

1.3.5 Transitional Funding Arrangements

A significant foundation of the Covenant system is an agreement by industry signatories to contribute funds to studies and programs to assist local government to develop a kerbside collection system with potential to be viable in a market-based environment. This funding is called 'Transitional Funding Arrangements', intended to assist the transition to a fully-fledged market based kerbside service. Contributions to these Transitional Arrangements are required under the NPC and each industry signatory is required to outline their contribution in their action plan (NPC, 1999).

The original amount of transitional funding anticipated was $17.45 million from industry contributions, to be matched by government contributions, thereby totalling $34.9 million over the five-year period of the NPC. This was the maximum amount to be raised to fund potential projects. Originally, funds were to be collected over the first three years, with funding planned for distribution from the fourth year for kerbside recycling-related projects. However, due to a slow start to the NPC, contributions only began in the second year and scheduled contributions have been altered each year to try to achieve the required amount of funding (Gerard van Rijswijk, pers. comm., 1/12/03). Jurisdictions that do not contribute will not receive raised funds. To administer industry contributions separately from government contributions, the National Packaging Covenant (Transitional Arrangements) Industry Association (NPCIA Inc.) was established. The NPCIA Inc. raises and manages industry's contribution to the NPC Transitional Arrangements. For the purposes of contribution, the packaging chain has been broken down into four sectors: raw material supplier, packaging manufacturer/household paper sector, packaging user or wholesaler/retailer. A contribution schedule has been developed for each of these four sectors. For example, companies with a turnover of up to $250,000 pa must contribute $1,000 pa. Companies with a turnover of $100m pa must contribute between $3,500 and $13,750 pa, depending on their sector (DEH,

2003). To date the total amount of transitional funding raised nationally through industry contributions has been quoted as between $7m and $10m (Gerard van Rijswijk, pers. comm. 1/12/03). However, the amount and allocation of these funds is not transparently documented or publicly available.

The level of funds to be made available depends on the needs identified in a 3-year business plan, jointly developed on a national basis by relevant government officials and representatives of the packaging chain. This process will establish a set of criteria for deciding the allocation of funds.

The allocation of the transitional funding prioritises kerbside recycling, which is primarily conducted or financed by local government. Funding can be provided to peak local government bodies or to individual councils. The Jurisdictional Recycling Group (JRG) in each jurisdiction examines project proposals and prepares a work plan for how the funds are to be allocated. This is referred to as the National Kerbside Recycling Group, which has delegated authority from the Covenant Council to approve project funding. It is this group that ensures funded projects are coordinated and avoid duplication, as well as addressing the NPC's objectives. All projects need Kerbside Recycling Group's approval in relation to their scope/objectives/outcomes and funds. The Covenant Council provides some guidance to the overall funding parameters such as whether funds can be used for local government litter reduction initiatives or retailer plastic bag reduction education programs (Jane Mallen-Cooper, pers. comm., 13/1/04).

The most active and organised jurisdictions that have received transitional funding are Victoria (approximately $8.4m allocated to projects), followed by Queensland (Gerard van Rijswijk, pers. comm. 1/12/03). Neither the Local Government Association of NSW nor its local councils are NPC signatories, but a small amount of transitional funding has been allocated to NSW through the JRG, with projects planned to the end of 2003 totalling $579,000 (NSW JRG, 2002). However, as the funding is distributed in proportion to the jurisdiction's population, according to the Industry Association, NSW would have been eligible for approximately $12 million. As there are no local government signatories in NSW, no funds have flowed to NSW local government. The NSW Jurisdictional Recycling Group, representing members from State Government and industry, has been quite active and has contributed to a range of projects with both local and national significance. These include (NSW JRG, 2002):

- qualitative validation of research into consumer demand for environmental packaging;
- best practice elements for collection of recyclable materials addressing specifically glass breakage;
- research into linked council garbage and recycling collection contracts;
- assessment of alternative domestic waste and recycling systems;
- feasibility assessment of generating crushed glass fines for markets;
- best practice council contract support program;
- research into linked council garbage and recycling contracts;
- market intelligence for packaging.

1.4 National Environmental Protection Measure

The National Environment Protection Measure (Used Packaging Materials) (NEPM) is intended to cover the minority of industry stakeholders who chose not to join the Covenant, or those who do not establish other arrangements producing outcomes equivalent to those through the Covenant (cl 11, NEPM, 1999). The NEPM's primary purpose is to support the NPC and to ensure that no competitive disadvantage results for NPC signatories. Under the Covenant system, each jurisdiction is required to legislate the intent of the NEPM (cl 9, NEPM, 1999). In NSW, this has been enacted through the Used Packaging Waste Industry Waste Reduction Plan, as part of the *Waste Avoidance and Resource Recovery Act 2001*.

In acting as a safety net, the NEPM has a focus that is quite different to that of the NPC. The goal of the NEPM is to reduce environmental degradation from "disposal of *used* packaging and conserve virgin materials through the encouragement of *re-use and recycling of used* packaging materials' (our italics; cl 6, NEPM, 1999). The scope of the NEPM is limited to the end stage of the packaging process —the recovery, re-use and recycling of *used* consumer packaging material (cl 7, NEPM, 1999), with a focus on:

- materials used for packaging materials consumed on domestic premises;
- materials used for packaging food and beverages intended for consumption in public places or in commercial provision of food services to individuals in hotels and restaurants;
- household paper and cardboard; and
- bulk packaging of household products.

Perhaps contradicting the spirit of product stewardship, the NEPM targets non-signatory brand owners, or signatory brand owners who have not met their obligations under the NPC. Brand owners are generally Australian producers or importers of packaged products and not retailers unless they are also manufacturers, wholesalers or importers. Brand owners[15] are targeted because they are identified as the point in the packaging chain where there is maximum scope for choice and action about packaging and hence likely to have the most downstream impact (NEPC, 1999). Under the NEPM, jurisdictions are to impose on non-signatory or non-compliant signatory brand owners the following statutory obligations (cl 9(2), NEPM, 1999):

- to undertake or assure the systematic recovery of consumer packaging in which brand owners' products are sold;
- to undertake or assure the re-use, recycling or energy recovery of consumer packaging in which the brand-owners' products are sold;
- to demonstrate that all materials recovered by them have been used through re-use in packaging of brand owner's own products, used within Australia as a secondary resource, or export as a secondary source; and
- demonstrate that all reasonable steps have been taken to advise consumers on how packaging is to be recovered.

The NEPM requires brand owners to provide the following information every financial year to participating jurisdictions. Unlike the requirements of NPC, these requirements are quite detailed (cl 16(1) NEPM, 1999):

[15] A brand owner is defined in the NEPM as: "a) a person who is the owner or licensee in Australia of a trade mark under which a product is sold or otherwise distributed in Australia, whether the trade mark is registered or not; b) in the case of a product which has been imported, the first person to sell that product in Australia; c) in respect of in-store packaging, the supplier of the packaging to the store".

- total weight of material used by material type;
- number of units of packaging by unit and material type;
- total weight of material recovered by material type;
- total weight of recovered material re-used and recycled in Australia by material type;
- total weight of recovered material re-used and recycled by material type through export;
- total kilojoules of embedded energy recovered;
- total weight of recovered material disposed of to landfill; and
- how consumers have been advised as to how packaging is to be recovered.

The information provided is used to calculate the brand owner's recovery rate (cl 16(2), NEPM, 1999). Under the NEPM, local governments are required to provide to participating jurisdictions, stipulated information about their kerbside recycling collection service (cl 17, NEPM, 1999). The stipulated information required of local governments is detailed and relate to:

- the percentage of households covered by any such service,
- participation rates,
- number of tenements covered by service and whether tenements are residential or other kinds,
- the per tenement fee charged for service,
- total weight of recyclable material collected by kerbside by material type and if the material is sorted,
- the total weight of each material type sold and/or sent for secondary use, including energy recovery and
- the total weight of the residual fraction of each material type disposed of to landfill

Participating jurisdictions are required to carry out annual surveys of materials and brand owners represented in the kerbside collection system (cl 18, NEPM, 1999).

Participating jurisdictions are required to annually report to the National Environment Protection Council (NEPC) on the performance of their respective NEPM implementation, using the information collected from brand owners, local governments, surveys and complaints received, investigations undertaken and prosecutions conducted (cl 21, NEPM, 1999). The information is to be reported in a standard reporting format.

The NEPC is required to publish a statement of overall national performance using both information about the Covenant and the information obtained under the NEPM (cl 19, NEPM, 1999). Where the Covenant signatory has provided information to the Covenant monitoring body (Covenant Council), it will not be required to provide any additional reports to the NEPC. The Covenant Council is only required to provide the following information to the Commonwealth, which then provides it to the NEPC:

- membership of Covenant (both in numbers and the proportion of consumer packaging used in Australia represented by those signatories);
- number of action plans lodged with Covenant Monitoring Group; and

- recovery and utilisation rates[16] reported by Covenant signatories in accordance with their action plans under the Covenant, by material type.

Enforcement of the NEPM is based on complaints, or an assessment by the relevant jurisdiction that intervention—including prosecution—may be required (cl 21(1)(d), NEPM, 1999). This is modelled on the *Trade Practices Act*, which covers fair trading and competition issues (NEPC, 1999, p. 70). Enforcement under the *Trade Practices Act*, as applied by the ACCC, requires balancing use of limited resources to achieve the maximum benefits[17]. Jurisdictions under the NEPM are required to target enforcement activities for maximum effectiveness.

According to the Covenant Council's secretariat member Andrew Bray, the NEPM has been successful in encouraging recruitment to the NPC (Andrew Bray, pers. comm. 25/11/03). This is supported by the fact that in jurisdictions that have enacted the NEPM into state legislation for some time, the majority of industry have chosen to sign up to the NPC rather than be regulated by their jurisdiction's NEPM (NEPC, 2002).

1.4.1 Regulatory Impact Statement

In its impact statement relating to the proposed NEPM[18], the NEPC identified the objective of the Covenant system as being 'to optimise resource use and recovery and encourage the conservation of virgin materials' (NEPC, 1999:11). The NEPC justified the need for a national regulatory mechanism such as the NEPM to support the NPC as one of providing governments and industry 'clear and consistent performance benchmarks and objectives'. It saw the NPC and NEPM as establishing a "nationally consistent and reliable basis for the collection of data on the overall environmental impact of used packaging, including better information on the environmental and economic costs and benefits associated with the recovery, reuse, recycling and disposal of used packaging materials" (NEPC, 1999:8).

The Council saw NEPM's primary role as encouraging membership in and supporting the NPC itself, which it saw as the primary instrument to deliver environmental benefits. Given this support role, the NEPC considered that the NEPM's environmental effect would be marginal. Regional environmental differences were only expected to arise in those areas producing the virgin materials used in packaging, but the Council concluded that the objectives of the Covenant system are likely to lead to a positive rather than negative environmental impact (NEPC, 1999:47).

The Council considered economic impacts of the NEPM were unlikely to be adverse or significant to the community, the brand owners, local government, or the jurisdictions required to administer it. Generally, the economic impact of the NEPM was considered marginal, since it was expected to be confined to non-domestic producers of packaged goods having a ten per cent market share of grocery items retailed within Australia (NEPC, 1999:41). This is because the NEPC anticipated that close to 100% of domestically produced packaging and over 90% of grocery items sold in Australia would be covered by the NPC

[16] Recovery rate is defined in cl. 16(2) as (weight of material recovered from post-consumer waste stream) divided by (weight of material sold as packaging within Australia) x 100; utilisation rate is not defined in the Measure.

[17] Some of the enforcement priorities outlined by the ACCC, for example, are: "there appears to be blatant disregard for the law; the matter particularly affects disadvantaged consumers; there is significant public detriment; successful enforcement, by litigation or other means, would have significant deterrent or educational effect; or an important new issue is involved, eg one arising from economic or technological change" see Australian Competition & Consumer Commission, Summaries of Trade Practices Act and the Prices Surveillance Act, November 1995; cited in NEPC (1999:71).

[18] In accordance with section 17 of the *National Environment Protection Council Act* 1994 (Commonwealth).

(NEPC, 1999:41). The NEPC canvassed industry attitudes to refund packaging deposits and take back obligations. Attitudes then were that these systems are administratively and operationally cost prohibitive, with the potential to destroy kerbside recycling (NEPC, 1999; p51).

The social impacts of the NEPM were based on the attitudes of industry, local government and the community to different aspects of the changes proposed by the Covenant system. Industry attitudes were captured in early 1998, before the nature of industry commitments to kerbside recycling or the form of the NEPM were known. Most industry attitudes captured then revealed that this sector felt it was already fulfilling its environmental obligation with regard to packaging product stewardship and that market forces should determine the best outcomes for kerbside systems. Many industry stakeholders were of the view that an effective NEPM is required to ensure that the NPC proceeds and yet they were concerned that governments not apply strong punitive measures. Industry was almost universally opposed to legislative intervention despite acknowledging a need for the NEPM, on the basis that regulatory options were "strong" and potentially costly (NEPC, 1999: 50).

Local governments surveyed were concerned about the rising cost gap in providing kerbside recycling services. They were of the view that these services were likely to reduce if short-term funding problems were not addressed. They saw industry, Commonwealth and State Governments as stakeholders that should contribute funding directly to kerbside systems, while fulfilling other roles in waste minimisation (NEPC, 1999:55).

On the basis of a number of surveys conducted since 1994 of community attitudes to the environment and towards recycling, the NEPC concluded that there is a significant level of community support for material recovery programs. The relatively high levels of materials recovery achieved in kerbside programs supported this. However, it appears the issue of funding and responsibility for kerbside services were poorly understood or known by the communities surveyed at various times (NEPC, 1999, p.61).

2 ASSESSMENT OF THE COVENANT SYSTEM

2.1 Methodology and Key Performance Criteria

This review assessed the Covenant system on two levels, namely:

- how the Covenant system has performed as a packaging policy instrument to reduce the generation of packaging waste, including both the reduction of waste to landfill and the use of virgin materials in packaging; and
- whether the NPC has achieved its own stated objectives.

To undertake this dual assessment, ten Key Performance Criteria (KPC) were developed. The development of these KPCs was based on the Covenant system's own objectives, a literature review of appropriate NSW strategies, key methodologies and international best practice. These included:

- *NSW Waste Avoidance and Resource Recovery Strategy* (Resource NSW, 2003)
- *Consultation Paper: Extended Producer Responsibility Priority Statement* (NSW EPA, 2003);
- *The Independent Assessment of Kerbside Recycling in Australia* (Nolan ITU/ SKM Economics 2000);
- *The Independent Review of Container Deposit Legislation* (ISF, 2001); and
- *Ideas for Community Consultation: a discussion on principles and procedures for making consultation work* (Carson and Gelber, 2001); and
- Reports from the *Australian Waste Database* (Moore and Tu, 1999);
- *Agenda 21* (detailing Australia's international obligations), (UNCED 1992);
- *Extended Producer Responsibility Phase 2: Case Study on the Dutch Packaging Covenant,* that employed the Sustainable Industrial Development (SIDE) model (OECD, 1998);
- *Guidance Manual for Governments: Extended Producer Responsibility* (OECD, 2001); and
- *Tellus Packaging Study: Assessing the impacts of production and disposal of packaging and public policy measures to alter its mix: Volume 1*. (Tellus Institute, 1992).

The use of criteria as opposed to indicators was deliberate, as it encapsulates process as well as performance outcomes. Process-related issues that would be captured by criteria, but not indicators, include transparency and the consultation processes used to establish and operate the Covenant system. Indicators may be considered a sub-set of criteria.

In Table 1, relevant selections from the NPC are cited by their clause number in relation to each criterion. The development of such key performance criteria and associated indicators will be a welcome addition for some signatories such as the Packaging Council of Australia (2004) and Amcor, which suggested in its most recent action plan that the NPC could be improved by the 'introduction of explicit Key Performance Indicators for signatories to measure and report against' (Sutton, 2004).

Table 1: Description and sources of Key Performance Criteria

1. Reduction in generation of packaging waste: **The overarching environmental objective of a packaging policy is to reduce packaging waste to reduce environmental impacts.[19] In order to reduce resource use and the environmental impacts of packaging waste, stakeholders in the packaging chain should reduce:** • **virgin materials used in packaging and** • **packaging material disposed to landfill.** *(Nolan ITU/SKM Economics 2000; Grant et al. 2001, Tellus Institute, 1992; Moore and Tu, 1999; ISF, 2001)*
NPC reference: *Establish a collaborative approach to ensure that the management of packaging and paper throughout its lifecycle. ...produces real and sustainable environmental benefits in a cost effective manner.* [**cl 2**] *Packaging will be manufactured so as to minimise the amount of materials essential to guarantee the protection, safety and hygiene of the product.* **[cl 4]** *The goal of the Measure is to reduce environmental degradation arising from disposal of used packaging and conserve virgin materials through encouragement of re-use and recycling of used packaging materials…* **[cl 6, NEPM]**
2. Compliance: **As a voluntary tool, the NPC does not explicitly refer to the consequences for non-compliance despite the existence of the NEPM. However, effective processes are required, so that basic compliance sets the minimum standards by which performance may be assessed. Stakeholders must comply with the undertakings and obligations of the waste reduction tool that is linked to a collective target. If individual performance is not linked to a collective goal or target, compliance is not meaningful. Basic compliance needs to be reviewed and audited by an independent body. This recognises that even with commitment by all involved, parties operate within political, economic and social contexts that may lead to non-compliance. Accordingly, independence is required to overcome conflicts of interest in auditing and reviewing processes.** *(OECD, 2001)*
NPC reference: *All signatories will produce action plans in accordance with Schedule 1 for evaluating and improving environmental outcomes…in their production, usage, sale and/or reprocessing and recovery of packaging materials'* **[cl.5.1]** *The [Covenant] Council has overall responsibility for the implementation and management of the Covenant. …The Council will comprise senior representatives of signatories from Australian jurisdictions of ANZECC, local government and the packaging supply chain and representatives of any other bodies agreed to by all these parties* **[cl 6]** *The Covenant Council may review Action Plans from time to time…All audits shall be carried out by a qualified, independent auditor drawn from a list maintained by the Covenant Council.* **[Sch 1]** *Participating jurisdictions should ensure that the following persons and bodies will be exempted from, or deemed to comply with, the obligations imposed according to clause 9:* • *National Packaging Covenant signatories who are fulfilling their obligations under the Covenant;* • *Other industries or industry sectors for which the participating jurisdiction is satisfied that arrangements exist for the industry or industry sector that produce equivalent outcomes to those achieved through the Covenant.* ***[cl 11, NEPM]***

[19] Environmental impacts include: virgin materials extraction, energy consumption and greenhouse gas emissions, transportation, water consumption, generation of by-products, air and water pollution, landfill disposal and illegal disposal. These are identified in *Figure 2*, Section 1.1.

3. Measurability:

Appropriate, transparent and accurate measurement of packaging waste avoidance and resource recovery. The packaging policy should have a clearly defined objective that is measurable. The policy should include consistent and standardised reporting requirements to ensure aggregation and comparison of data across sectors, material types and jurisdictions.

(UNCED, 1992; Moore and Tu, 1999; Resource NSW, 2003)

NPC reference:

Those companies involved in the manufacture, use and retailing of packaged products undertake to: Collect data and report on developments in packaging and the quantities of packaging produced…[and] Work co-operatively with governments to develop key indicators to measure the source and generation of packaging materials, the utilisation of recovered materials by secondary markets and the disposal of residual packaging waste to landfill. **[cl 4]**

The Covenant Council will develop performance indicators **[cl 6]**

Each action plan should…identify the major commitments, financial resources and arrangements that will be put in place address all Covenant undertakings relevant to the signatory. **[Sch 1]**

All signatories are required to maintain records to enable them to be able to demonstrate, on request by the Covenant Council, that they are meeting their Covenant undertakings and taking appropriate action to meet their action Plan objectives. **[Sch 1]**

[Signatories should] Cooperate in the collection of relevant data on a national basis. **[Sch 1]**

[Signatories should] Establish measurable performance objectives and mechanisms to monitor their achievement. **[Sch 1]**

Participating jurisdictions shall require brand owners to record the following information for each packaging material used during a financial year by the brand owner:

- *total weight of material used by material type;*
- *number of units of packaging by unit and material type;*
- *total weight of material recovered by material type;*
- *total weight of recovered material re-used and recycled in Australia by material type;*
- *total weight of recovered material re-used and recycled by material type through export;*
- *total kilojoules of embedded energy recovered;*
- *total weight of recovered material disposed of to landfill; and*
- *how consumers have been advised as to how packaging is to be recovered* **[cl 16(1), NEPM]**

4. Transparency:

Transparency requires that appropriate accountability systems and procedures be in place. This includes the requirement to regularly and publicly report to relevant stakeholders and disseminate relevant data in a timely and accessible way.

(OECD, 2001)

NPC reference:

Develop and implement reliable information to assist consumers in making informed purchasing choices. The responsibility for establishing and financing balanced information campaign for the general community and school students must be shared by all those in the packaging chain. **[cl 4,NPC]**

The information contained in the action plans will be publicly available unless the signatory advises and demonstrates to the Covenant Council that the information is confidential or commercially sensitive. [**Sch 1, NPC]**

The purpose of this part is to set out protocols for the process to be followed to enable participating jurisdictions to assess the achievement of the desired environmental outcomes of the Covenant and NEPM and to report annually to Council on progress against the goal of the NEPM **[cl 14, NEPM]**

5. Clear Objectives:

Clearly defined objectives that are measurable.

(OECD, 2001; Moore and Tu, 1999)

NPC reference:

Establish a framework based on the principle of shared responsibility for the effective lifecycle management of packaging and paper products including their recovery and utilisation.

Establish a collaborative approach to ensure that the management of packaging and paper throughout its lifecycle and the implementation of collection systems including kerbside recycling schemes produce real and sustainable environmental benefits in a cost effective manner.

Establish a forum for regular consultation and discussion of issues and problems affecting the recovery, utilisation and disposal of used packaging and paper, including costs **[cl 2, NPC]**

6. Shared Responsibility:

Shared responsibility between all stakeholders along the entire packaging chain from design to disposal/reuse, including both financial and physical responsibility. This should be in accordance with the OECD principles of 'Polluter Pays'.

(ISF, 2001; OECD 1998; OECD, 2001; NSW EPA, 2003)

NPC reference:

The Covenant is based on the principle of product Stewardship. This includes an ethic of shared responsibility for the lifecycle of products including the environmental impacts of the product throughout to and including its ultimate disposal. **[cl 4, NPC]**

Package designers should work with the packaging chain (from design to reuse) to ensure that opportunities for waste minimisation, secondary market creation and the reduction of litter are taken. **[cl 4, NPC]**

The National Packaging Covenant is an agreement entered into by governments and industry participants…based on principles of product stewardship and shared responsibility. Product stewardship imposes an obligation on all those who benefit from production to assume a share of responsibility for a product over its lifecycle. **[cl 5(1), NEPM]**

7. Cost-effectiveness:

Cost effectiveness of options should be evaluated holistically, in order to consider:

- **how its cost-effectiveness compares to other potential options;**
- **not only economic but also environmental and social costs and benefits, using a life-cycle approach;**
- **whole-of-society costs, not just costs to individual stakeholders; and**
- **how financial responsibility can be best distributed.**

(ISF, 2001; OECD, 2000; Beck et al. 2002, Tellus Institute, 1999; Nolan-ITU/SKM Economics,, 2000; Moore and Tu, 1999).

NPC reference:

Establish a collaborative approach to ensure that the management of packaging and paper throughout its lifecycle…produces real and sustainable environmental benefits in a cost effective manner. **[cl 2, NPC]**

Encourage greater recognition that used packaging is a resource to be reused and recycled in accordance with the waste hierarchy. [**cl 5, NPC]**

The parties recognise that kerbside collections are just one aspect of waste minimisation. [**Sch 2, NPC]**

8. Consultation and Participation:

All affected parties should be consulted and participate in the various stages of policy development and review in order to achieve cooperative outcomes. Stakeholders should have input in policy development, review, evaluation and review for amendments. Stakeholders include: consumers, local, State and Commonwealth governments, the packaging chain, the community, environmental groups and other special interest groups. Effective public participation includes the right to complaints processes.

(Carson & Gelber, 2001; OECD, 2001; Resource, NSW)

NPC reference:

All signatories to the Covenant recognise that a co-operative approach between industry and all spheres of government in essential to achieving national consistency in the life cycle management of packaging and paper. **[Preface, NPC]**

Establish a forum for regular consultation and discussion of issues and problems affecting the recovery, utilisation and disposal of used packaging and paper, including costs. **[cl 2, NPC]**

9. Education and Communication:

Ensure wide-ranging awareness of the aims and objectives of the regulatory framework by relevant stakeholders and the community and ensure access to relevant and useful information about strategies and resources to reduce packaging waste within industry, the retail sector and households.

(OECD, 2001; ISF, 2001)

NPC reference:

Develop and implement reliable information to assist consumers in making informed purchasing choices. The responsibility for establishing and financing balanced information campaign for the general community and school students must be shared by all those in the packaging chain. **[cl 4, NPC]**

[Signatories should] Undertake education and community awareness programs **[Sch 1, NPC]**

10. Administrative simplicity:

Minimise the costs (time, staff, other overheads) of administering the regulatory framework and ensure that administrative activities are appropriately directed towards the goal or objectives of the instrument.

(Resource NSW 2003)

No NPC reference

2.2 Assessment of the Covenant Against Key Performance Criteria

This section evaluates the Covenant system against the Key Performance Criteria identified above in Section 2.1. The results are summarised in Table 2.

Table 2: Summary of assessment of the Covenant system

Criteria	Assessment Summary
1. Reduction in generation of packaging waste	The NPC does not explicitly refer to reducing generation of packaging waste as an overall objective, however, it does refer to aspects of reducing packaging waste in various clauses. The lack of clarity and specificity in the reporting requirements for the NPC and the action plans has resulted in a situation where it is not possible to determine from these data sources alone whether the Covenant system is achieving a reduction in overall packaging waste. This is a serious shortcoming. Analysis of other available data sources suggests that packaging waste is increasing and for some materials recovery rates are decreasing, despite increases in kerbside collection tonnages in some jurisdictions. The emphasis on kerbside collection in the Covenant system means that there are no adequate mechanisms or strategies to increase recovery in the away-from-home sector. This focus on kerbside collection means that a whole-of-system perspective is not being employed in analyses and strategies.
2. Compliance	The effectiveness of a policy instrument relies, at a minimum, on its ability to ensure a level of compliance. The Covenant system relies on the NEPM to ensure that industry signs up with the NPC. The NEPM has in fact had this intended effect, as evidenced by the significant number of industry signatories. The lack of collective performance indicators, however, makes it difficult for signatories to demonstrate compliance beyond the signing of the Covenant and the preparation of an action plan, which are not, in themselves, meaningful in terms of packaging waste reduction. The NEPM itself has relatively good compliance measures: it requires brand owners who are subject to the NEPM to undertake and report on specified activities, such as recovery of consumer packaging in which its products are sold. However, the operation of the Covenant system as a whole means that it is highly unlikely that the provisions of the NEPM will ever be applied (see Section 1 and Appendix A).
3. Measurability	The NPC requires all signatories and the Covenant Council to collect and monitor appropriate data. However, there are no specific requirements for baseline data collection, coordination and standardised data collection and assumptions. Hence, there is no accurate, accessible and consistent measure of the trends in packaging waste generated and diversion from landfill. In contrast to the NPC, the NEPM reporting requirements are very clear and specify a range of key indicators for collection and reporting. Jurisdictional Recycling Groups provided under these NEPM reporting requirements focus on kerbside recycling and does not provide information on recovery rates. A specific and major flaw is that the away-from-home generation and recovery of packaging waste is not included in the reporting. The lack of a consistent, independently verified data set for the production, disposal and recycling of packaging waste is a major impediment to its management and minimisation. After four years of operation of the Covenant system, this is a major indictment of its efficacy and usefulness to meet its own goals, or any reasonable goals expected of a regulatory framework.

4. Transparency	The Covenant system requires the publication of action plans by signatories, which are publicly available and therefore accessible. These action plans are designed to report on how the NPC responsibilities have been implemented by each signatory. However, due to the lack of specificity of these responsibilities and despite references in the NPC and in Schedule 1 to the need for development of performance indicators, there is no requirement to report on progress towards the collective goal of reducing the generation of packaging waste.
5. Clear Objectives	The NPC has objectives that are generally worded, notably in relation to 'shared responsibility', the generation of 'real and sustainable environmental benefits in a cost effective manner' and the establishment of a 'forum for regular consultation and discussion'. However, these objectives are not defined in practical terms, focussing on processes rather than concrete outcomes. This makes it difficult to monitor performance. The lack of quantifiable or measurable objectives, expressed as a collective goal for signatories, leads to uncertainty for industry in terms of expectations beyond the administrative requirements of NPC membership and the submission of action plans.
6. Shared Responsibility	The NPC clearly identifies shared responsibility as the principle behind the Covenant system. However, by predominantly focusing on kerbside collection of recyclables, NPC does not achieve genuine shared responsibility. Local government still bears the major proportion of the physical responsibility and financial costs of kerbside recycling. The same applies to management of packaging litter.
7. Cost-effectiveness	The NPC acknowledges in its objectives that management of packaging should be undertaken in a 'cost effective manner', using 'life cycle management'. However there is a strong emphasis in the Covenant system on funding to reduce the costs of kerbside and increase yield, with no analysis of the relative cost effectiveness of holistic strategies to reduce packaging waste. There is a strong danger that the analyses undertaken and the policy actions that flow from them are favouring a sub-system (kerbside recycling) that is less than optimal as a whole (recovery of packaging waste in total).

8. Consultation and Participation	Consumer packaging, waste and recycling are issues of great interest to the community as well as the many stakeholders involved. In addition there are significant environmental and social costs associated with the generation and disposal of packaging materials. This suggests that there is a need for robust consultation with all stakeholders and with citizens. This has been demonstrably lacking in the development of the Covenant system as well as its operation. There was no participatory decision-making involving citizens in the development of the Covenant system. Perhaps significantly, there was no such consultation regarding the choice of this model as a policy framework for regulating packaging waste, rather than other options with clearer objectives and measurable indicators. This is despite the fact that there is a significant body of research (see BIEC 1997b and ISF 2001: Vol.III) that indicates that a significant majority of Australian citizens would prefer government involvement in regulation of packaging waste and for producers and consumers to share the cost to a greater extent, as well as the use of market-based instruments such as deposit and refund systems to increase recovery of packaging waste. Non-government organisations (notably peak environment organisations or consumer groups) were not involved in negotiating the NPC and, as is now well documented, many local governments have not been involved despite the importance of this sector in the packaging chain. The three current reviews of the Covenant system, while they involve some stakeholder consultation and even public forums, do not incorporate public participation in the stronger sense recommended here (see Carson & Gelber 2001). The lack of appropriate engagement of citizens and all interested stakeholders in the development, operation and review of the Covenant system is inconsistent with the principles of open government, Agenda 21 or Ecologically Sustainable development, as well as the spirit of a Covenant agreement.
9. Education and Communication	The NPC suggests that action plans include reference to efforts to 'undertake education and community awareness programs' about the Covenant system. This is an important component of any such policy framework and applies to the communications within signatory organisations, between stakeholders and to the wider community. Stakeholders' views on the performance of the Covenant system on this criterion are mixed, with some industry representatives stating that the Covenant requirements have increased the level of awareness of packaging-related issues within companies, while others have said that the awareness has not been widespread. A packaging policy framework that aims to increase general awareness within industry and in the community about the goals of reducing packaging waste would require a national program or strategy, with clear goals and measurable outcomes. It may incorporate community awareness-raising, decision-making support for industry in the form of cleaner production and design for the environment and decision-making support at the local government level in relation to household packaging waste. The Covenant system has not provided such a national program or strategy on packaging waste.

10. Administrative Simplicity	The administrative aspects of the Covenant system are focussed on increasing the number and coverage of signatories and preparing and reviewing action plans, as well as collecting and disbursing funds for agreed purposes. The associated administrative costs, as indicated by the number of people employed in these roles and the effort required, are modest. An assessment of the administrative simplicity of a policy framework should, however, be made relative to the goal of the policy. If the goal of this policy is to understand the generation and recovery rates of packaging waste and to reduce the generation and increase the recovery, then the focus of current administration efforts is misplaced. In the absence of alternative policy frameworks, it is difficult to assess the Covenant system against this criterion.

The following sections expand upon Tables 1 and 2 (above) to assess the Covenant system against the Key Performance Criteria developed above in Section 2.1 of this report.

2.2.1 Reduction in generation of packaging waste

Numerous studies highlight the fact that reduction in generation of packaging waste (an 'avoidance' measure) is a key goal of a packaging policy instrument (Tellus Institute 1992; Nolan-ITU/SKM Economics, 2000; OECD, 2001; NSW EPA, 2003; ISF, 2001; Moore and Tu, 1999). Whilst the NPC does not specifically refer to the environmental objective of reduction in the generation of packaging waste, or even the waste hierarchy's levels of 'Avoidance, Resource Recovery, Disposal' it does state:

> *Packaging will be manufactured so as to minimise the amount of materials essential to guarantee the protection, safety and hygiene of the product* [cl 4]

The lack of clarity and specificity in the reporting requirements for the NPC and the action plans has resulted in a situation where it is not possible to determine from these data sources alone whether the Covenant system is achieving a reduction in overall packaging waste. This is a serious shortcoming. Analysis of other available data sources suggests that packaging waste is increasing (see Appendix B) and for some materials recovery rates are decreasing (see Appendix C), despite increases in kerbside collection tonnages in some jurisdictions. For example, glass (recyclate recovery in NSW has decreased approximately 5% year on year for the 4 years the Covenant system has been operating, despite an increase in production of glass containers (see Appendix C). An Australian study comparing Australia's recycling performance to other countries notes that glass packaging recycling rates in Australia may have dropped below 40%, which is significantly below that of other countries (Nolan-ITU, 2002).

There are several claims by industry that light-weighting has led to a reduction in the generation of packaging waste (BIEC, 2004). Whilst light-weighting has reduced the mass of glass per litre of beverage by 4% between 1996 and 2002 (BIEC, 2003), this has been overcompensated for by the 10% increase in beverages packed in glass (by volume) leaving a 6% net increase in glass production by mass (See Appendix C for calculations and assumptions).

The emphasis on residential kerbside collection in the Covenant system means that there are no adequate mechanisms or strategies to increase recovery in the away-from-home sector, which represents a significant proportion of the packaging waste stream (see Figure 4). By way of example, in the better characterised beverage sector representing approximately 50% of packaging waste, half of all beer and soft drink containers are consumed away from home and therefore are not accounted for in kerbside recycling (ISF, 2001).

Additionally, this focus on kerbside collection fails to seriously consider a range of avoidance measures, as discussed in Box 1, which would provide outcomes more consistent with waste hierarchy priorities. It also means that a whole of system perspective is not being employed in analysis and strategies. For example, the combination of light-weighting and the move towards co-mingled collection, to increase collection yields and reduce collection costs, are likely to be major contributors to the decline in glass recovery rates in NSW.

To summarise the problem and highlight the potential for improvement, consider as an example beverage containers, which represent approximately half of the packaging waste sector (see Appendix A). Of the approximately 10 billion beverage containers produced every year in Australia for local demand, approximately 5 billion are sent to landfill, or about 450,000 tonnes per year.[20] This means 50% are still not being recovered. According to OECD and Australian research, Australia ranks poorly in terms of overall waste generation, with the

[20] Estimates based on NSW data from ISF (2001).

second highest per capita rate of waste generation in the world (OECD, 1999; OECD, 2000; Nolan-ITU, 2002; ABS, 2003a). Australia's lack of away-from-home recycling is contributing to its poor overall recycling performance internationally. A recent Nolan-ITU study (2002) found that EU countries 'superior recycling rates' (p.14) compared to Australia can be attributed to their use of regulated recycling measures and packaging directives.

Box 1: Waste Avoidance – the Most Effective Strategy

Avoidance is becoming known, both nationally and internationally, as the most important and effective way to achieve waste reduction, including that of packaging (Resource NSW, 2003; OECD 2000b, 2001). The NSW *Waste Avoidance and Resource Recovery Act* 2001 uses an amended version of the 'Waste Hierarchy' to achieve its objects of encouraging 'the most efficient use of resources, to reduce environmental harm and to provide for the continual reduction in waste generation in line with the principles of ESD'. As such, it sets out the hierarchy in priority order as follows:

- **Avoidance** (including strict avoidance, reduction at source and product re-use); then
- **Resource Recovery** (including recycling, composting and energy from waste); then
- **Disposal** (including landfilling).

The *Environmental Code of Practice for Packaging* (Schedule 3, NPC, 1999) also highlights the importance of avoidance. It states 'packaging which is not essential to the distribution, retail sale, storage or safety of the product should be avoided. Packages which are essential for these purposes should be of as light construction as possible, since light-weighting can make a significant contribution to avoidance' (clause 7.5, Environmental Code of Practice for Packaging, 1997 in Schedule 3, NPC, 1999).

The NSW branch of the Waste Management Association of Australia has recently formed a Waste Avoidance Working Group in recognition that avoidance is a principal focus when aiming to reduce waste. The working group considers waste avoidance as having three dimensions: strict avoidance, reduction at source and product re-use (WMAA, 2004).

Internationally, there are examples that illustrate waste avoidance. In Ireland, the introduction of a 26c levy on bags led to a decrease in bag consumption of 90 percent within the first year (Edie Network, 2002), an achievement that sparked consideration of a similar levy in Australia (later rejected in favour of targets). In Denmark, disposable cans and bottles are prohibited and the return rate for refillable glass bottles is close to 99 percent and almost as high for refillable PET bottles, thus reducing household waste to landfill by up to 12 percent (Danish EPA, 1999). The NPC has not considered avoidance measures to the same extent as it has recycling. Despite the strong emphasis on avoidance in the above key documents and organisations, the NPC does not directly refer to waste 'avoidance'. It only refers to the waste hierarchy when stating 'the Packaging Supply Chain will … encourage greater recognition that used packaging is a resource to be reused and recycled *in accordance with the waste hierarchy*… ' (Sch 5.5, NPC, 1999, our italics). The NPC refers to light-weighting in Schedule 3b as an example that 'source reduction with light-weighting of packaging has been a major focus of activity' (Sch 3b, NPC, 1999,). However as discussed in Section 2.2.1 (p.24), this light-weighting has not resulted in substantial reduction in the generation of packaging waste. It is strongly recommended that any future packaging waste reduction policy should adhere closely to the waste hierarchy and emphasise the importance of avoiding waste as a main priority.

To accurately and consistently measure the reduction in packaging waste, it is important to explicitly define a system boundary around what 'packaging' includes and what it excludes. While some of the objectives of the NPC are not clearly specified and explained in practical terms, as discussed in *Section 2.2.1* above, consumer packaging and household paper are clearly defined, with the exception of whether plastic bags are included or excluded:

> *Consumer packaging means all products made of any material, or combination of materials, for the containment, protection, marketing and handling of retail consumer products. It also includes bulk packaging that contains multiple units of a product intended for consumer use.* (cl 2, NPC; cl 3 NEPM); and *Household paper means writing paper, cardboard and mixed paper, other than paper used to publish newspapers or magazines, which forms part of the domestic and municipal waste stream.* (cl 2, NPC; cl 3 NEPM, 1999).

As described in the above exert, bulk packaging is explicitly included in the definition of packaging. However, besides aggregated data supplied by BIEC (2003) for the production of bulk packaging in the beverage industry, there is limited data available to measure the production, recovery or landfilling trends for bulk packaging, a major flaw of the NPC.

Views among stakeholder groups on this question of reduction in packaging waste tend to vary widely. According to Alan Slade, who works for Anchor packaging, part of the producer sector, the NPC has succeeded in reducing, or hastening the reduction, of the generation of packaging waste (Alan Slade, pers. comm.1/12/03). Victorian local governments, according to EcoRecycle Victoria's Jon Ward, have had 'tremendous results' in recycling increases due to funding assistance from the transitional funds (Jon Ward, pers. comm., 1/12/03). Representatives of other businesses in the packaging industry have claimed that the NPC has provided an incentive to introduce light-weighting of materials, has provided an economic imperative for change and has assisted in causing a policy shift in purchasing policies (Nolan ITU, 2003).

Environmental non-government organisations, such as the Total Environment Centre, maintain that the NPC has not helped companies achieve any more than they would have otherwise done in the normal course of efficiency achievements on-site. The Centre's Jane Castle considers that, in terms of post-consumer packaging waste, the Covenant has not had any impact on the amount of packaging waste going to landfill or on litter (Jane Castle, pers. comm., 1/12/03). Similarly, Don White of the Zero Waste Network considers that the 'waste crisis' still exists and that waste production has not decreased due to the NPC (White, 2003).

The Local Government Association of NSW's Robert Verhey is concerned that, amongst other issues, even since the introduction of the NPC, new materials have entered the market without consultation with local government that cannot be completely recycled and kerbside recycling systems cannot be adjusted to accommodate these (Verhey, 2003). This is in contrast to the NPC's statement that 'a cooperative approach between industry and all spheres of government is essential to achieving national consistency in the lifecycle management of packaging and paper and the implementation of sustainable kerbside systems' (preface, NPC 1999). EcoRecycle Victoria's Jon Ward has stated that 'real and sustainable environmental improvements' (cl 2, NPC 1999) have not been achieved in the NPC's last five years, but notes that this is a long-term goal. EcoRecycle is seeking a 'new version' of the NPC, but considers that the next version should require more action if it is to succeed, encouraging a 'faster pace of change' over the next five years (Jon Ward, pers. comm., 1/12/03).

Thus, there is no means by which to effectively evaluate whether the NPC has reduced the generation of packaging waste and increased the overall recovery, due to a significant lack of accessible, reliable, comparable or consistent baseline data. The data sets which are available and accessible indicate growth in packaging waste generation in those areas (see Appendix B and C), particularly the food and beverage sector, which, according to PCA (1999), represents 65–70% of the packaging industry. The lack of evidence of the impact of the Covenant system on the reduction of packaging waste is one of its most serious shortcomings.

2.2.2 Compliance

The effectiveness of a policy instrument relies, at a minimum, on its ability to ensure a level of compliance. Basic compliance with obligations sets the minimum standard by which performance may be assessed. Even with commitment or undertakings by all stakeholders, however, parties operate within political, economic and social contexts that may lead to non-compliance with obligations. This underlines a need for the independence of the body ensuring compliance from all signatories, to overcome issues around conflicts of interest. Conflicts of interest are most likely to arise in processes used to evaluate compliance, such as when auditing, monitoring, reviewing and processes dealing with complaints.

Under the NPC, signatories are required to comply with two major obligations. These are to produce action plans and to contribute to transitional funds (which they are required to report in the action plans). If there is no consistency across what is reported in the action plans and no requirement to link individual performance to any collective goal, compliance with the current reporting requirements of action plans is not meaningful. Signatories have discretion to report on whatever they consider relevant, in any format they wish. The fact that clauses 4 and 5 of the NPC are far from clear (see Section 2.2.1 of this report) contributes to the difficulty. While signatories may in good faith be complying and producing action plans as required by the NPC, it is difficult to know whether collective goals in relation to reduced packaging have been achieved.

The review and audit process for action plans relies mainly on the discretion of the Covenant Council. While several random reviews have been instigated by the Covenant Council, no audits have been done to date (B. Butt, pers. comm., 17/12/03). Although provision is made for a third party to instigate a review or audit, this has not been used by industry either. This provision was thought to increase compliance through peer pressure, but industry appears reluctant to report other companies for breaches (B. Butt, pers. comm., 17/12/03). This has implications for how the existing capacity to review and audit is exercised, how seriously signatories take their requirement to comply and how seriously people consider the findings of any review or audit undertaken.

The Covenant system relies on the NEPM to ensure that industry signs up with the NPC. The NEPM has had this intended effect, as evidenced by the significant number of industry signatories. In jurisdictions (states) that have enacted the NEPM into state legislation for some time, the majority of industry have chosen to sign up to the NPC rather than be regulated by their jurisdiction's NEPM (NEPC, 2002; Annual Report 2001–2002). For example, in NSW almost all non-signatory brand owners elected to sign up for the NPC after being contacted by the EPA (NEPC, 2002, p.206). However, whether the NEPM is an effective compliance mechanism within the Covenant system is another matter. As such, the NEPM was originally intended to act not as a compliance tool for the NPC, but to ensure that industry signed up to the NPC and that non-signatories did not have a competitive advantage over signatories as a result. In practice, most state environmental protection authorities have sought to make the Covenant System work by using the threat of the NEPM to encourage compliance with the NPC (Jon Ward, pers. comm., 1/12/03). This may be because within the NPC itself, consequences of non-compliance are not significant. No penalties are stipulated. There is no reference in the NPC itself to the NEPM, thus omitting how the NEPM may be used to ensure compliance. Instead, jurisdictions are using clause 11 of the NEPM as a *de facto* compliance tool. Clause 11 exempts from the NEPM those NPC signatories who are 'fulfilling their obligations under the NPC' (cl 11, NEPM, 1999). This implies that a decision by the Covenant Council under the NPC that a signatory is not meeting its NPC commitments proves non-compliance. The NEPM is then assumed to apply to the non-compliant signatory.

The relatively rigorous requirements of the NEPM are seen to act as a disincentive for non-compliance. For example, in NSW the Covenant Council advises DEC of signatories who have not met their obligations under the NPC. DEC then contacts signatories, requiring them

to fulfil their signatory obligations within six weeks, or be subject to NSW enactment of the NEPM, the Industry Waste Reduction Plan (IWRP). In NSW, almost all non-signatory brand owners contacted by the EPA elected to sign up for the NPC, with only a very small number electing not to sign up and are now subject to the provisions of the NEPM (Jane Mallen-Cooper, pers. comm. 3/12/03). As a regulatory tool, the NEPM itself has relatively good compliance mechanisms. It requires brand owners to undertake specified activities, such as recovery of consumer packaging in which its products are sold (cl 9(2), NEPM, 1999). It also requires jurisdictions to establish offences carrying 'substantial financial penalties for brand owners who fail to comply with these obligations' (cl 10(2), NEPM, 1999). Although compliance procedures under the NEPM are clear, prosecution action under the NEPM has not occurred.

2.2.3 Measurability

Measurability relies on clearly defined objectives. It refers to the accurate, appropriate and consistent measurement of outcomes to assess whether policy objectives have been achieved.[21] Since the early 1990s, Australian governments have been required to collect and report on solid waste generation under a series of regulations and policies relating to waste management at the international, national and regional level (UNCED, 1992; Moore and Tu, 1999).

The NPC states in a number of instances that performance indicators, records, reliable and comprehensive data and mechanisms to monitor and measure progress, are required (cll 3-6, Sch 1, NPC. For example, signatory companies involved in the manufacture, use and retailing of packaged products must undertake to: 'collect data and report on developments in packaging and the quantities of packaging produced' and 'work cooperatively with governments to develop key indicators to measure the source and generation of packaging materials, the utilisation of recovered material by secondary markets and the disposal of residual packaging waste to landfill' (cl 4, NPC). Furthermore, the Covenant Council's management responsibilities include developing performance indicators (cl 6, NPC) while all signatories should 'cooperate in the collection of relevant data on a national basis' (Sch 1, NPC).

There is currently no accurate, accessible and consistent measure of trends in packaging waste generation and diversion from landfill currently available on a national basis. This can largely be attributed to flaws in the structure and requirements of the Covenant system, which has in turn meant a lack of appropriate data being collected by signatories.

These flaws are discussed further within the context of a lack of:

- measurable objectives;
- data being collected;
- standardised reporting requirements;
- transparency; and
- consistency of data.

Lack of measurable objectives

The principles and objectives of the NPC are generally expressed in discretionary, leaving them open to a variety of interpretations and making them difficult to evaluate. For example, the design of packaging should give 'careful consideration…to its possible effect on the

[21] Refers to those objectives that are quantifiable (e.g. reduction in generation of packaging waste) rather than those objectives that are process-oriented (such as transparency or consultation and participation).

environment…to ensure that opportunities for waste minimisation, secondary market creation and the reduction of litter are taken'. Distribution will 'reduce material and energy consumption to optimal level while maintaining product quality'. No specific undertaking is made under clause 5 of the NPC to collect data or report measurable benchmarks, although this is certainly implied by the principles outlined in clause 4.

The Local Government Association of NSW's Robert Verhey considers that the lack of measurable objectives and commitments and the fact that they are open to various interpretations have proved a challenge (Verhey, 2003). The Total Environment Centre's Jane Castle echoes this criticism, stating that 'not being able to judge the Covenant's success in itself is one of the primary problems' (Jane Castle, pers. comm., 1/12/03). Similarly, environment NGO representatives, such as Zero Waste Network's Don White, have been critical of the NPC's non-numerical targets, its lack of key performance indicators; the lack of a maintained database to measure packaging reduction; poor public perception; and high administrative costs against low results (White, 2003).

The scope of a packaging policy should be clearly defined to draw system boundaries to monitor and analyse progress towards policy goals. The NPC defines materials covered by the Covenant system as consumer packaging and household paper (excluding paper used to publish newspapers or magazines). Consumer packaging is defined as "all products made of any material, or combination of materials, for the containment, protection, marketing and handling of retail consumer products. It also includes bulk packaging that contains multiple units of a product intended for consumer use" (cl 2, NPC; cl 3 NEPM). The Environmental Code of Practice (the Code) within the NPC, which was developed to assist industry to consider environmental implications during the package design process, provides a slightly different and broader definition. It defines packaging as "all products made of any material, or combination of materials, for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer". The Code would conceivably include plastic bags used to deliver a number of goods from the supermarket to the home as packaging. The Code also specifies stakeholders explicitly, whereas the Covenant system does not. This disparity in definition of packaging leads to unclear objectives and difficulties in consistent measurement of the objectives.

Lack of data collected

Contrary to NPC requirements (cl 4 and Sch 1, NPC) and as described earlier in this section, there is a lack of baseline data on the production and fate of packaging, other than that collected at kerbside in some jurisdictions. Some members of the packaging industry reason that data collection is resource intensive and so they have not undertaken to track their reduction in waste and increases in recycling through data collection (Anchor Packaging's Alan Slade, pers. comm., 1/12/03). The task of determining whether packaging waste has been reduced in line with NPC objectives need not be a difficult one. It is possible to construct and populate an equation to determine the effectiveness of the NPC in terms of reduction in generation of packaging waste and waste to landfill based on a simple mass balance:

[production of packaging materials] = [waste to landfill, excl. litter[22]] +[recovery & reuse]

However, much of the data required to populate the model such as production of primary and secondary packaging is not being collected consistently and assembled by key stakeholders. Raw data exists for some sectors, such as production of beverage containers (BIEC Action Plans), however there is no single organisation responsible for the collation and analysis of all the data. This requirement or responsibility is not explicitly specified in the NPC, which is another element hindering its effectiveness. There is primary data available for various

[22] Litter is excluded from this equation as it is considered negligible relative to other sources and sinks of packaging waste.

product sectors which, would enable analysis of packaging production in order to complement the available recycling data, if sufficient support were available from the Covenant funding and the NPCC. Some of this production data is based on commercially available market research data sources such as the Euromonitor International surveys (Euromonitor 2003a, 2003b, 2003c, 2003d) and those provided by the Australian Soft Drink Association (ASDA, 2003). These combined with the results of historical waste audits such as the recycling and garbage bin analysis (see for example BIEC, 1997b) could be used to construct a reasonably robust mass balance model (for an example, see ISF 2001:62).

Lack of requirement for standardised data collection

The ability to measure changes in packaging waste generation and hence performance of the NPC, requires a consistent reporting framework. A lack of common reporting standards run the risk that information is collected in forms that cannot be aggregated or compared across industry sectors, material types and jurisdictions (Moore and Tu, 1999). While the Covenant system acknowledges the continuing need "*to collect and maintain reliable, comprehensive and national data on the overall environmental impact of used packaging*" (cl 3, NPC) there is no requirement in the NPC nor process established by the National Packaging Covenant Council to collect such nationally consistent and standardised data.

Whilst the Covenant system appears to define the scope or coverage of material and product type relatively clearly, it is not clear on the specifics of the information required about those material and product flows. All sectors cannot necessarily be expected to collect the same type of data on the basis that they deal with very different spheres of activity within the packaging chain. However the packaging policy could specify the relevant parts of the material balance equation for each sector and hence what data needs to be collected by that sector. Standard assumptions and units could also be specified.

This lack of requirement in the NPC for coordinated standardised data collection and reporting contrasts with the NEPM, which requires non-signatory brand owners or signatory brand owners who have not met their obligations under the NPC to provide specific information every financial year to participating jurisdictions (cl 16(1) NEPM; also see Section 1.4 above). The NEPM outlines a standard formula to calculate recovery rate for brand owner used packaging material (cl 16(2), NEPM).

Participating jurisdictions under the NEPM are required to adopt a common approach to interpreting data gathered using information protocols (cl 21(2), NEPM) and reporting using a standard reporting format (cl 21(1), NEPM). The NEPC justified the need for a national regulatory mechanism such as the NEPM to support the NPC as a mechanism to provide governments and industry 'clear and consistent performance benchmarks and objectives'. It saw the Covenant system as establishing a:

> *...nationally consistent and reliable basis for the collection of data on the overall environmental impact of used packaging, including better information on the environmental and economic costs and benefits associated with the recovery, reuse, recycling and disposal of used packaging materials* (NEPC, 1999:8).

The NEPC is required to publish a statement of the overall performance of the NPC and NEPM (cll 19 and 21, NEPM). However, an accurate assessment of their overall performance will not be possible if information required from industry signatories (under the NPC) is different to non-signatory brand owners (under the NEPM). Information required from signatories in their action plan is non-specific as set out in Schedule 1 of the NPC, while the requirements on brand owners are specific (cl 16, NEPM) and jurisdictions are required to report in a standard format (cl 21(2), NEPM).

The lack of a consistent framework for reporting action plans was noted by GHD in their review (GHD, 2002). The Local Government Association of Queensland's Bryce Hines

agrees and also points out that local government appears to have undertaken the only data collection as required by the NEPM. As this same type of data collection is not mirrored by industry, for example, providing data on how much packaging material is produced and the level of recycled content included, a full data set is still required to track reductions in packaging waste and increases in resource recovery (Bryce Hines, pers. comm., 25/11/03).

Lack of transparency

Some data sets on packaging waste generation and recovery, which exist, have not clearly referred to primary data sources or clearly stated assumptions. For example, it is difficult to determine any sources of data analysed in the NEPC Annual Report 2001/02 or the methodology and assumptions behind these data sets (NEPC, 2002).

Additionally, some companies aggregate their data due to concerns about 'commercial-in-confidence' issues (Nick Harford, pers. comm., 1/12/03). For companies with a larger market share of one product, these concerns are real and valid. This aggregation can create difficulties in analysing the data to determine reduction in generation of packaging waste. However, this is often a matter of the appropriate aggregation of data to ensure that commercial confidentiality is maintained, while providing sufficient data on recovery of materials by industry sector, and disaggregated by material. This has been possible in the past with the reporting of packaging generation and recovery by the independent BIEC statistician as part of the Industry Waste Reduction Agreement with the NSW EPA prior to 2001.

Lack of consistency

There is a lack of consistency in some instances where data exists from more than one source. An example is data on contamination rates at kerbside recycling. Whilst the NEPC Annual Report (2003) for NSW states that contamination rates are down to six per cent in 2001 (from eight per cent the previous year), data presented in the Independent Assessment of Kerbside Recycling Australia (Nolan-ITU/SKM Economics, 2000, p.30) suggests that it is likely to be over sixteen per cent. There is also a major discrepancy (approximately 30%) between the reported glass yields in the NEPC report for NSW (self reporting by local government) and the actual tonnages that are aggregated at the Visy Botany beneficiation plant, which aggregates all glass recyclate from MRFs and other sources in NSW. The latter source shows a steady decline in glass recovery (see Section 2.2.1 and Appendix C). Similarly, as indicated in Appendix B and C, the data on beverage packaging presented in the BEIC Action Plan (2003) is inconsistent with other market research data, and has no accompanying references or explanatory notes regarding the origin of the data.

The lack of a consistent, independently verified data set for the production, disposal and recycling of packaging waste is a major impediment to its management and minimisation. After four years of operation of the Covenant system, this is a major indictment of its efficacy and usefulness to meet its own goals, or any reasonable goals expected of a regulatory framework and thus there is no way of accurately determining the environmental achievements of the NPC.

2.2.4 Transparency

Transparency requires that appropriate accountability systems and procedures be in place. Accountability systems include regular reporting to relevant stakeholders, regular dissemination of relevant data and implementing procedures that enable easy access to information. It also supports effective public participation processes (see Section 2.2.7).

Methods for implementing accountability systems vary and may include statutory obligations to produce public reports, publishing specified information at specified times and in specified

ways and Memoranda of Understanding between stakeholders to secure agreements to supply and exchange information.

In its regulatory impact statement of the NEPM, the NEPC stated that one of the goals of the Covenant and NEPM was to establish a:

> *nationally consistent and reliable basis for the collection of data on the overall environmental impact of used packaging, including better information on the environmental and economic costs and benefits associated with the recovery, reuse, recycling and disposal of used packaging materials. (NEPC, 1999).*

At the core of this policy is the need to address use of materials in packaging, by reduction, re-use and recycling. A key requirement of such a policy instrument would be to provide sufficient transparency to enable an assessment of whether it has been achieved at a national level. This involves at the very least, standard reporting by industry of core basic information about materials use that are deemed relevant to such an assessment. In addition, the roles of various bodies involved—for example in monitoring, reviewing and reporting and their various relationships—need to be clear so that the chain of accountability is made clear, both for the purposes of reporting and for the purposes of complaints procedures. There are three aspects to address:

- reporting data and information;
- roles and reporting relationships of bodies; and
- management of funds for kerbside recycling.

Reporting data and information

The NPC requires signatories to produce action plans that report on how they have implemented their responsibilities under the NPC, but it does not require the kind of reporting needed for collective transparency. Despite some references to developing performance indicators—both in the NPC and in its Schedule 1—key performance indicators were not considered when the NPC was being negotiated not only because it was considered too difficult to develop indicators for all sectors of the packaging supply chain, but also because industry wanted to avoid any set target (B. Butt, pers. comm., 2/12/03). Signatories may and do choose to report on whatever they deem relevant to their NPC performance (see Section 2.3). Signatories have considerable discretion as to the measures they set in their action plans to comply with their obligations under the NPC. In its review of the action plans, GHD recommended providing a standard reporting protocol for annual reports and action plans (GHD, 2002).

On the other hand, the NEPM establishes information protocols for reporting and requires brand owners, local governments and participating jurisdictions to report on specific information (cl 14, 16, 17 of NEPM). In addition, the information provided is to conform to a national or standard reporting form that has been agreed between participating jurisdictions (cl 20(2) & (4), 21(1) of NEPM). In reporting the information to the NEPC, participating jurisdictions are required to use a common approach to interpreting data gathered and use terminology as set out in the NEPM (cl 15(3) & (4), NEPM).

Therefore, while the two documents are intended to work together to achieve the same overall objectives, their information and data requirements are quite disparate. The relative rigour required of the NEPM has meant that it has been very effective in getting industry to sign up for the NPC (see NEPC, Annual Report 2001–2002: *Jurisdictional Report on Implementation of Effectiveness of NEPM*) in order to avoid the requirements placed on them by the NEPM. In practice, this has meant that while the necessary clear information protocols exist, they are lacking in the NPC, where they would be most useful.

The disparity in information collection also relates to the issue of which body reports what to whom and how the chain of accountability operates.

Roles and reporting relationships of bodies

The Covenant system as a whole is unclear about which body is to report on the national performance of the Covenant system and how separate bodies set up under the Covenant are positioned in relation to each other.

In practice, what this requires is reporting of the national performance of the NPC itself, given that the NEPM has been so successful in encouraging membership. The NPC is the key driver of the Covenant system and this may suggest that the Covenant Council, as custodian of the NPC, should have responsibility for reporting on the performance of the Covenant system. This is not apparent from the NPC. The Covenant Council has the role of monitoring the NPC and kerbside recycling issues. 'Monitoring' could conceivably require data collection. In practice the Covenant Council 'monitors' by maintaining a register of signatories and ensuring compliance with requirements for action plans. The Council commits to reporting annually on 'issues affecting the NPC, including the performance of Covenant *signatories*…(our italics)' (cl. 6, NPC).

Within the NPC itself there is no requirement to report on overall performance beyond reviewing and auditing action plans and this implies that the Covenant Council is not required to be accountable. The NEPM, however, suggests that the Covenant Council is required to provide specified information annually to the Commonwealth, which is then to be used by the National Environment Protection Council to publish a statement of overall national performance (cl 19, NEPM). The information required does not record how the Covenant has reduced use of packaged materials. Instead it deals with issues such as membership, number of action plans lodged and recovery and utilisation rates as reported by signatories in their action plans.

It is up to the NEPC to 'publish a statement of overall national performance'' (cl 19 & 21, NEPM, 1999), using the information provided by the Commonwealth, alongside that provided by participating jurisdictions under the NEPM. A 'statement' does not provide the full range of transparency that a report would give. Given the disparities in information required under the NPC and under the NEPM and the fact that information from the Covenant Council does not reflect collective performance, it would be difficult to know how the Covenant system is in fact performing and which body could be approached for which kinds of information.

Management of funds for kerbside recycling

A key feature of the Covenant system is the establishment of a transitional fund for kerbside collection services. While local governments' accountability for these services, in terms of reporting, are quite clear under both the Covenant and the NEPM, the same cannot be said of the way in which transitional funds are managed and allocated. Local governments are required to provide specified information about these services every financial year to their respective jurisdictions (cl 17, NEPM) and the jurisdictions in turn are required to report this information in a standard format to the NEPC (cl 21(1), NEPM, 1999). In addition, they undertake to "apply transparency to municipal budgets and rates so that the financial aspects associated with waste disposal and kerbside collection systems are available to households and the general community" (cl 5.4, NPC). Participating jurisdictions are required to 'facilitate transparency of charging for kerbside recycling collections by Local Governments by removing legislative barriers which prevent transparency' (cl 9 (7), NEPM).

In the NEPC's 1999 statement of the impact of the NEPM, the issue of funding and responsibility for kerbside services was poorly understood or known by the communities

surveyed at various times (NEPC, 1999, p.61). This may in part be due to the unclear objectives of funding and also in part due to the lack of transparency around who manages the fund and how it is to be used and allocated.

There is much confusion about how the funds are allocated, even among industry members. Firstly, there is confusion around how much in fact has been raised. The National Packaging Covenant (Transitional Arrangements) Industry Association (NPCIA Inc.) raises and manages industry signatories' contributions, which currently exceed $10m (Gerard van Rijswijk, pers. comm., 1/12/03). The amount raised is unclear and no publicly available documentation was provided to the researchers for this review.

There is also confusion about what the objectives of funding are, who does what in the allocation of funds and how that allocation gets reported (and by whom). In the NPC, funding is for 'transitional tasks' (Sch 3, NPC) to alleviate transitional challenges for a longer-term kerbside collection system (Sch 3, NPC,). Industry is clear about what should *not* be funded[23], but not clear about what will be funded. The Schedule refers to allocation of funds according to a 'rigorous set of criteria' to be developed and to be made available on the basis of needs identified in a 3-year plan. This plan is to be jointly developed nationally by relevant government officials and representatives of the packaging chain. However, the NPC Secretariat has confirmed that the only existing criteria are those which individual signatories set themselves in their action plans (B.Butt, pers. comm., 2/12/03).

Funds are disbursed after a Transitional Arrangements project has been agreed to by the industry members of the NPC Council and its committees. These same industry members form the Committee of Management of the NPCIA and two signatures of committee members are needed on any cheque made out in payment of the industry share of any project (NPC, 1999). As well, the jurisdictional recycling group (JRG) in each State examines project proposals and allocates funds. The JRG's report to the national Kerbside Recycling Group (KRG) and this group ensures projects are coordinated and avoid duplication, as well as meeting the Covenant's objectives (Gerard van Rijswijk, pers. comm., 1/12/03). The national KRG reports to the Covenant Council and its role is to coordinate projects associated with kerbside recycling. In NSW, the JRG commits to 'supporting local councils to move towards improved practices in terms of kerbside recycling contracts and systems, increasing markets both for currently collected and emerging materials and providing sound data to guide continued program development' (NSW JRG, 2003).

The JRGs apply to the NPCIA to fund selected projects, however, information about funding criteria, amounts allocated and specific projects funded are not provided by the NPCIA as complete, publicly available documentation, but only in individual information requests directly to the NPCIA. This has led to complaints from some industry signatories, especially the larger contributors, who wish to know how the transitional funds have been spent. According to the NSW DEC, some industry signatories have not been satisfied with the narrow scope of some projects being funded (Jane Mallen-Cooper, pers comm., 3/12/03).

Although the success or otherwise of kerbside collection services is reported by jurisdictions, aspects of the management of transitional funds are not clear. Specifically, it is not clear who should be accountable for how transitional funds are used and reported and whether the funds are having their intended impact. The following questions require answering:

- how are needs for funding identified (i.e. what processes are used for identification)?
- how are criteria for allocating funds determined?
- who is accountable for reporting how much is raised; and
- who is accountable for how raised funds are spent.

[23] That is, subsidise prices or collection costs and support activities or practices of councils which are either uneconomic or do not represent best practices.

2.2.5 Clear Objectives

A packaging policy instrument should have clearly defined, unambiguous objectives. These objectives should specify a collective goal that is outcome focused. Without clear objectives, a policy cannot be effectively evaluated nor can compliance be readily enforced.

The NPC specifies three (process-based) objectives (cl 2):

> *1. Establish a framework based on the principle of shared responsibility for the effective life cycle management of packaging and paper products including their recovery and utilisation.*
>
> *2. Establish a collaborative approach to ensure that the management of packaging and paper throughout its life cycle and the implementation of collection systems, including kerbside recycling schemes, produce real and sustainable environmental benefits in a cost effective manner.*
>
> *3. Establish a forum for regular consultation and discussion of issues and problems affecting the recovery, utilisation and disposal of used packaging and paper, including costs.*

These three objectives cover important and appropriate concepts, notably 'shared responsibility', 'real and sustainable environmental benefits' and a 'forum for regular consultation and discussion'. They are also broad and over-arching, with ample scope for differing interpretations. For example, the principle of 'shared responsibility' is not defined in the NPC in practical terms for Australian stakeholders in the packaging chain. Nor is there reference to definitions commonly used elsewhere, such as OECD definitions. The NEPM, however, refers to a definition of shared responsibility:

Product stewardship imposes an obligation on all those who benefit from production to assume a share of responsibility for a product over its lifecycle (cl 5(1), NEPM).

The ambiguous nature of the NPC's objectives is compounded by its singular focus on kerbside recycling. For example, the NPC refers to 'life cycle management' in a 'cost effective manner' as a central tenet, but prematurely adopts kerbside recycling as the primary practical option for this. Since kerbside recycling is only one of many feasible options—and not necessarily the lowest cost option for recovery and recycling of packaging waste (see *Section 2.2.8 Cost Effectiveness)*—this exclusive focus on kerbside recycling clouds the meaning of and could potentially negate, other objectives.

Additionally, the allocation of financial and physical responsibility for kerbside recycling is not being managed on 'the principle of shared responsibility' as defined by OECD (2001). This is discussed further in *Section 2.2.3 Shared Responsibility* below.

The objective of a "collaborative approach" is not clearly defined. There is a reference to a 'forum for regular consultation and discussion' and the preface suggests that the stakeholders involved might be 'all sectors of the packaging supply chain and all spheres of government—Commonwealth, State/Territory and local', but the processes for that to occur are not clear. Critically, the NPC has not ensured collaboration between all stakeholders. For example, many local governments were not involved in the development of the NPC and are subsequently not collaborating in the NPC process. This may be a result of the fact that the nature of this collaboration and consultation, beyond National Packaging Covenant Council (NPCC) and subordinate group meetings, has not been clearly defined in the NPC. See *Section 2.2.7 Consultation and Participation* for further discussion.

The lack of quantifiable or measurable objectives, expressed as a collective goal for signatories, leads to uncertainty for industry in terms of expectations beyond the administrative requirements associated with Covenant membership and the submission of action plans.

2.2.6 Shared Responsibility

The NPC recognises shared responsibility as a core principle:

> *The Covenant is based on the principle of Product Stewardship. This includes an ethic of shared responsibility for the life cycle of products including the environmental impacts of the product throughout to and including its ultimate disposal*. [cl.4]

However, the NPC does not define shared responsibility. In the absence of the NPC's definition, this review will use the OECD definition. Shared responsibility means all stakeholders share responsibility for the full environmental and economic impacts of that product (OECD, 2001; Institute for Local Self Reliance, 2000).

The NEPM's Regulatory Impact Statement indicates that the responsibility and cost of diverting used packaging materials from landfill has tended to fall on collectors (mostly local government) and end users (the companies that buy back materials). The NEPC considered implementation of the Covenant system as ensuring an equitable sharing of responsibilities and costs (NEPC, 1999, p.8).

The NEPM targets brand owner non-signatories to take specific actions and to provide detailed information (cl 16(1) NEPM), which it suggests "imposes an obligation on all those who benefit from production to assume a share of responsibility for a product over its lifecycle." (cl 5(1), NEPM, 1999). However, the operation of the Covenant system is such that the NEPM is highly unlikely to be triggered due to the NPC requirements of an action plan and payment of a relatively small sum of money are relatively easy to meet and require no further financial or physical responsibility for packaging waste to be demonstrated. The flow chart in Appendix D indicates that although non-compliant signatories are sent letters from the Covenant chair requesting compliance with NPC, there is no explicit avenue for triggering the NEPM. Thus, although the NEPM deals with shared responsibility, perhaps in more practical terms than the NPC, the NEPM is unlikely to be triggered, so its shared responsibility obligations are not being applied.

The OECD deems shared responsibility to refer to both physical and financial responsibility, where *physical* responsibility is the direct or indirect responsibility for the physical management of the products at the end of their useful life (OECD, 2001, p.53). Local government is still largely responsible for post-consumer products through the provision of garbage collection and kerbside recycling services. There has not been any notable change in physical responsibility since the introduction of the NPC. Both State and local governments have raised concerns that the aim of 'shared responsibility' has not been implemented equitably, with producers bearing lower financial costs than local governments. This inequity could in part be due to a lack of clarity of roles and responsibilities under the NPC. Both the NSW Department of Environment and Conservation and the Local Government Association of NSW are seeking clearer definitions of organisational roles, especially for local government (Verhey, 2003; Jane Mallen-Cooper, pers. comm., 3/12/03). Furthermore, Victorian and NSW State Government bodies are keen to see signatories make changes 'higher up the supply chain' (Jon Ward, pers comm., 1/12/03) and to see 'a focus on businesses with significant inputs into the waste stream' (Jane Mallen-Cooper, pers. comm., 3/12/03).

Financial responsibility is defined by the OECD as responsibility for paying all or part of the cost for managing the waste at the end of the product's useful life. This includes activities such as collection, sorting and treatment of waste (OECD, 2001, p.53). There is little data available on financial contributions by sector towards reducing generation of packaging waste. Again, this may be a result of a lack of clearly defined roles or understanding of what shared responsibility means in practice in the NPC. Data is available on expenditure on kerbside recycling by sector and some data is available on costs of litter prevention, collection and management. In the absence of data availability to evaluate other areas, contributions to litter and kerbside recycling are addressed here.

Local government, the beverage industry (BIEC) and non-government organisations such as Clean Up Australia spend significant amounts on litter collection, prevention and management. Estimates of the relative contribution of these groups suggest that, nationally approximately $160M to $270M (Ecorecycle, 2002; ISF, 2001, p.114) is spent on litter collection and management by local government, based on pro-rating estimates for Victoria and NSW respectively[24]. The contribution by the packaging industry and brand owners towards the cost of litter management is not publicly available but is likely to be significantly less than these amounts. For example, the total annual budget for the Beverage Industry Environment Council, for example, is approximately $3.5M per annum (Maree McCaskill, pers. comm., 5/1/01). Therefore, even in relation to litter, which along with kerbside recycling and plastic bags occupies a significant amount of NPCC's time and resources, a similar imbalance exists in relation to the financial contribution by local government and by industry. However, litter is a relatively small portion of the total waste stream, compared to the proportion recovered for recycling and reuse and sent to landfill, which has a greater environmental impact. In relation to kerbside recycling, there is still an uneven distribution, weighted heavily to local government.

Local government associations in Queensland and NSW feel that local government is 'wearing the cost' (Bryce Hines, pers. comm., 25/11/03) of the NPC and that they are at the 'end of the chain of decisions with little ability to influence the start of chain' (Verhey, 2003). They see a need for financial incentives upstream of the packaging chain rather than downstream, to provide financial equity. When comparing the contribution of industry to the kerbside recycling system to that of local government, it is evident that local government still bears a large financial burden relative to the packaging industry. According to the Nolan-ITU/ SKM Economics (2000), local government's national net expenditure on kerbside recycling is $158m pa[25]. This can be compared to the contribution of the brand owners, who have spent a total of $3m pa (based on $7–$10m[26] contribution to Transitional Funds over three years). This is shown in *Figure 4*. It should be noted that a substantial portion of this financial contribution to the Transitional Funds has not yet been spent (see also Section 1.3.5 Transitional Funding Arrangements). Unlike the financial costs and benefits of kerbside collection, which are reasonably well documented and characterised, the net costs to industry associated with support for recycling through the establishment of recycling facilities and over market-value payments for recyclates are more difficult to characterise and verify due to the constraints arising from commercial confidentiality. They are unlikely to match ratepayers' contribution of ratepayers (via local government) to kerbside recycling.

[24] Local government expenditure on litter collection in NSW estimated at $91.8m/annum (ISF, 2001) and extrapolated to the Australian population. The Victorian expenditure has been estimated at $41m (EcoRecycle, 2002) and has also been extrapolated to the Australian population.

[25] This figure is a net cost, taking into account the avoided costs of landfilling and the residual value of recyclate.

[26] This figure is estimated, as there is no transparent record of the exact amount that has been collected for the Transitional Fund.

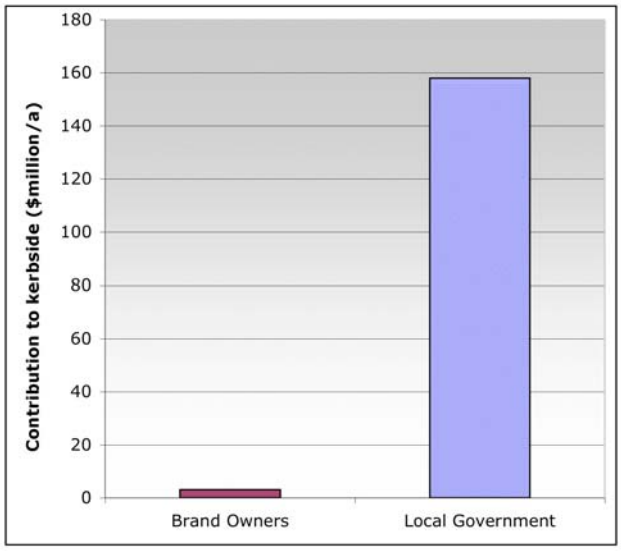

Figure 4: Annual financial contribution to kerbside recycling by Brand Owners and Local Government.

Sources: Nolan-ITU/SKM Economics (2000, p.40); Barbara Butt, pers. comm., 2/12/03.

Despite NPC's due recognition of the principle of shared responsibility, there is no evidence of this principle enacted in practice, either physically or financially. Local government remain the significant bearer of both physical and financial responsibility.

2.2.7 Cost-effectiveness

In line with national and international progress made in the last decade in relation to life cycle analysis of the environmental impacts of packaging waste (ISF, 2001; Tellus Institute, 1992; Nolan-ITU/SKM Economics, 2000; Moore and Tu, 1999), any potential option to reduce the generation of packaging waste should be evaluated holistically, to consider:

- which waste streams to prioritise;
- the relative cost-effectiveness compared to other potential options;
- not only economic but also environmental and social costs and benefits, using a life-cycle management;
- whole-of-society costs, not just costs to individual stakeholders; and
- how financial responsibility can be best distributed.

The NPC acknowledges that management of packaging should be undertaken in a 'cost effective manner' and using 'life cycle management' (cl 2, NPC). However there is no evidence demonstrating this objective is being met. The NPC also specifies that 'kerbside recycling should be maintained' (Sch 2 [3], NPC) which conflicts with life cycle principles, as it fails to consider the whole-of-life impacts of the packaging chain. Indeed, kerbside recycling is not the only, or even the most cost-effective means to achieve waste minimisation and other environmental benefits. 'Recycling' is lower in the waste hierarchy than both 'strict avoidance' and 'product reuse' (Resource NSW, 2003; OECD, 2000b) and although the NPC seeks to, 'encourage greater recognition that used packaging is a resource to be reused and recycled in accordance with the waste hierarchy' (cl 5, NPC 1999), the potential for reuse has not featured prominently in practice. The NPC recognises that 'kerbside collections are just one aspect of waste minimisation' (Sch 2, NPC). As does The Packaging Council of Australia (PCA) who stated 'recycling is a means of achieving a goal, not a goal in itself and should

result in some measurable environmental benefit. It is not always economic and it is not necessarily a hallmark of environmental superiority.' (PCA, 1994).

Despite this recognition of the waste hierarchy and multiple approaches to waste minimisation, there is still a strong emphasis on kerbside collection. In the NPC funding priorities reducing the costs of kerbside and increasing yield and the Covenant Council commissioned the Independent Assessment of Kerbside Recycling in Australia (Nolan ITU/SKM Economics, 2000) to quantify the benefits of kerbside collection and recycling of packaging materials. However, there has been no analysis of the relative cost effectiveness of holistic strategies to reduce packaging waste. In fact in Nolan ITU/SKM Economics (2000) study and a Victorian equivalent (Grant et al. 2001), which involved life cycle assessment, analysis of the costs and benefits of the collection of waste packaging materials from the away-from-home sector, was specifically excluded. This represents a serious omission. The away from home sector represents half of the total packaging waste generation for some of the major packaging categories (BIEC, 1997a), such as beverage packaging. The away-from-home sector and other non- kerbside-recycling sectors that are not being addressed under the NPC are indicated in *Figure 5* below.

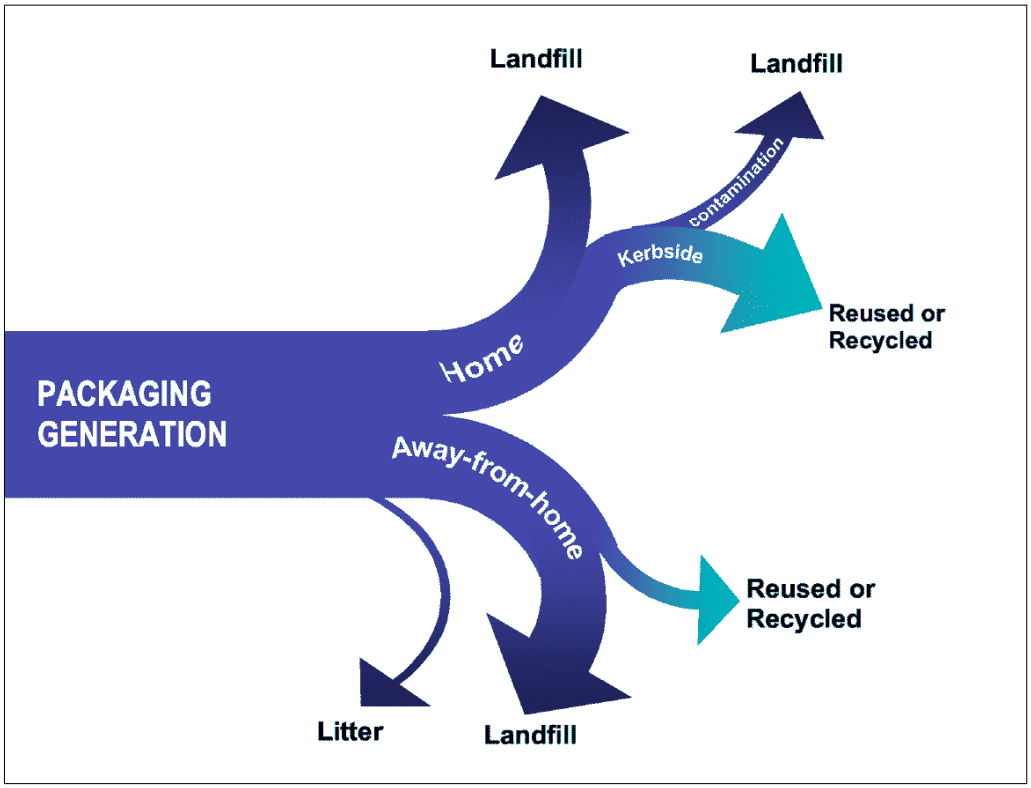

Figure 5: Conceptual diagram of packaging waste flows in Australia.

** the widths of the arrows are indicative of and are not exactly proportional to real waste volumes/weight due to lack of relevant data available as discussed in Sections 2.2.4 Measurability and 2.2.2 Reduction in Packaging Waste.*

***newspaper and magazine print, which make up 58% of the kerbside recycling stream by mass (EcoRecycle Victoria, 2004), are excluded from the NPC definition of packaging and thus is also excluded from the kerbside waste flow indicated in this diagram.*

There is a strong danger that the analysis undertaken and the policy actions flowing from it are optimising a sub-system (kerbside recycling) but resulting in a less than optimal system (recovery of packaging waste in total, as indicated in Figure 4). Two studies (one in Australia, one in the United States) on the use of deposit and refund systems as a means of increasing

recovery rates for beverage packaging found that unit costs (¢/container, or $/tonne) were lower than kerbside systems alone and could help to reduce the net costs of kerbside collection (ISF, 2001; Beck et al., 2002).

Other issues given disproportionate attention by the Covenant system are litter management and plastic bags. This is despite the fact that there has been no analysis of why these issues should be prioritised over other parts of the packaging waste stream on the basis of criteria such as their relative contribution to the waste stream, environmental impact, relative ease and cost of establishing measures to reduce these waste streams.

This contrasts with the European experience where a number of life cycle analysis studies have indicated that refillable beverage containers, notably refillable PET, represent the best option in terms of overall lifecycle environmental impact by a large margin, as describe in Section 3.4 (Ekvall, 1999; Prognos et al, 2000). This has led to setting of quotas and targets for refillable containers in a number of European jurisdictions.

Plastic bags: A welcome addition to the NPC?

According to statistics from the Commonwealth Department of Environment and Heritage, Australians use 6.9 billion plastic bags (36,700 tonnes) each year, 54 percent of which are supplied by supermarkets. Recycling in-store has not been very successful, capturing less than three percent of bags, while 36 per cent become part of household rubbish sent to landfill and one percent is dropped as litter (cited in Peatling, 2004).

Plastic bags are not specifically covered under the NPC's definition of 'consumer packaging' and the only direct mention of plastic bags is under Schedule 3b, which lists examples of existing or planned initiatives, including retailers introducing alternatives to plastic bags, returning plastics bags for recycling and increasing the recycled content of plastic bags (Sch 3b, NPC).

In 2002, a spirited discussion took place in Australia on the introduction of a plastic bag levy of 25c. This issue was motivated by the Irish success of introducing a 26c levy on bags. In the first six months of this levy being introduced, bag consumption of approximately one billion plastic bags per year fell by 90 percent and the levy collected A$7mill for the government (Edie Network, 2002). Australian Greens senator Bob Brown introduced a Senate bill in September 2002 to impose a 25c levy on plastic bags and a subsequent Roy Morgan survey showed almost 80 per cent of Australians supported the levy.

In response, the Australian Retailer's Association questioned the effectiveness of a levy to reduce litter (despite the low contribution of plastic bags to the litter stream). The Association publicly stated their intention to oppose the levy, and instead reaffirmed their commitment to the NPC (AAP, 2002). In late 2003, Australian Environment Protection and Heritage Council (EPHC) Ministers concluded that targets were preferable to a levy. Federal Environment Minister, Dr David Kemp, stated in an interview that "The ministers … haven't been convinced that a levy is the answer because Australians will respond to a levy in a particular way and that may not deal at all with the litter problem" (Kemp, 2003b). Instead, the ministers proposed targets of a 75 percent reduction in bag litter and a 50 percent reduction in plastic bag use, initially to be achieved by December 2004, but this was extended to December 2005, with a 25 per cent reduction to be achieved by the end of 2004. In discussion with the Association, the Ministers accepted an amended *Code of Practice for the Management of Plastic Bags,* which also sets a recycling target for lightweight HDPE bags of 30 percent through in-store and kerbside recycling by the end of 2005, commits to phase out single-use HDPE bags, strives for a 90 percent participation rate, requires baseline data by all signatories about current levels of use and recycling, and regular, publicly available reports (Kemp, 2003a). The Ministers did warn that if the targets are not reached, the option of mandatory measures will be revived (Kemp, 2003a).

Independent of these discussions, some Australian communities have committed to becoming 'plastic bag free'. These include Coles Bay in Tasmania, Huskisson on the NSW South Coast and Kangaroo Island in South Australia (Peatling, 2004).

The active consideration of plastic bags and the options that have been proposed to deal with them, including levies and targets is of interest, given the relatively small contribution of plastic shopping bags to the waste stream and to litter and the reluctance of governments and industry to adopt such an approach for the rest of the packaging waste stream. The involvement of the NPC Council in this discussion was also important as, although plastic bags are not specifically included in the NPC, the NPC Council apparently provided advice to the ARA on its earlier Code drafts to include a reduction target (Fyfe, 2003) and the NPC established a National Plastic Shopping Bags Working Group and commissioned two major studies on the issue. There is clearly scope for analysis of the relative contributions of plastic shopping bags to the overall environmental impacts of packaging. It would also be beneficial to establish priorities for developing policy responses to packaging waste. There needs to be an active discussion about why this particular waste type, plastic shopping bags, would be eligible for active consideration of levies and targets, when these options would trigger an industry walkout from the NPC if they were applied to other waste types.

While the NPC notes that '…kerbside collections are just one aspect of waste minimisation' (Schedule 2, NPC, 1999), it is a strongly emphasised strategy throughout the document, with the transitional funds provided to improve kerbside systems. The Total Environment Centre's Jane Castle criticises this emphasis, stating that kerbside recycling should only comprise one part of the Covenant system's goals and objectives. Insufficient attention has been paid to Extended Producer Responsibility approaches, including take-back systems, CDL, mandatory packaging reduction targets, banning of the use of non-recyclable materials where there are recyclable materials available, minimum recycled content regulations, regulations restricting the use of hazardous substances in packaging and the mandatory phase out of materials for which there are no resource recovery systems in place (Jane Castle, pers comm., 1/12/03). Visy's Nick Harford considers that, in addition to kerbside recycling, there need to be litter initiatives, commercial recycling and public place recycling (Nick Harford, pers comm., 1/12/03).

The NSW Department of Environment and Conservation's Jane Mallen-Cooper would like to see expansion beyond kerbside recycling of domestic packaging waste to other priority packaging sources, including those from the transport, commercial and industrial sectors. She would also like to see packaging material priorities that are based on environmental impacts, volume, market existence and recyclability. Possible priority materials identified to DEC by stakeholders include PVC, polypropylene, mixed plastics, stretch film, polystyrene, oil containers, as well as encouraging councils to collect a wider range of materials. She suggests that DEC would also find it useful to review the scope of packaging product stewardship beyond domestic packaging waste, perhaps to include transport packaging (Jane Mallen-Cooper, pers comm., 3/12/03).

Local Government perspectives on NPC's emphasis on kerbside recycling differ depending on whether the local government is a signatory or non-signatory. Robert Verhey of the Local Government Association of NSW, which is not a signatory, considers kerbside recycling to be one tool amongst a number for packaging waste reduction. He criticises a system that requires communities to pay a mandatory kerbside collection fee for kerbside recycling, while allowing the packaging industry to launch new packaging materials onto the market without requiring them to be compatible with existing recycling systems. He is also critical of the loss that councils incur as a result of having provide the recycling service. He estimates this loss to approximately $150m each year (Verhey, 2003).

Victorian local government signatories have received $8.1m in transitional funding through the Covenant, of which $3.5m has been spent on litter reduction through public recycling systems market research into recycled materials and in implementing cost reducing and yield increasing measures to kerbside recycling in 15 councils (Jon Ward, pers. comm., 1/12/03). According to EcoRecycle's Jon Ward, these reforms have increased recycling yields by 20% through education, reducing bin size for mixed waste and providing split bins for recycling (Jon Ward, pers. comm., 1/12/03). In Queensland, the other state in which the NPC has been signed by the local government association, the Local Government Association of Queensland's Bryce Hines questions whether the increase in recycling yields have been due to the NPC or just to good business practices. However, the Association considers that, with 95% of the state's residential population serviced by kerbside recycling, changing this system and developing new infrastructure would be too costly. Hence, they support future NPC initiatives that utilise and enhance existing kerbside recycling systems (Bryce Hines, pers. comm., 25/11/03).

Thus, the NPC has failed to meet environmental objectives in a 'cost-effective manner'. As described in Section 2.2.3, local councils are spending approximately $158m pa, while industry is assisting this with contributions of just $3m pa. There is also no evidence of a transparent methodology to determine the cost-effectiveness of options employed for reducing packaging waste.

2.2.8 Consultation and Participation

Consumer packaging, waste and recycling are issues of great interest to the community as well as the many stakeholders involved. In addition there are significant environmental and social costs associated with the generation and disposal of packaging materials. This suggests that there is a need for robust consultation with all stakeholders and with citizens in general. This has been demonstrably lacking in developing the Covenant system as well as its operation. There was no participatory decision making involving citizens in the development of the Covenant system and perhaps significantly, there was no such consultation regarding the choice of this model for policy framework to regulate packaging waste, rather than other options with clearer objectives and measurable indicators. Non-government organisations (notably peak environment organisations) were not involved in the process and, as is now well-documented, most local governments have not been involved despite the importance of this sector in the packaging chain. The three current reviews of the Covenant system, while they involve some stakeholder consultation and even public forums, do not incorporate public participation in the stronger sense suggested here (see Carson & Gelber 2001). The lack of appropriate engagement of citizens and all interested stakeholders in the development, operation and review of the Covenant system is inconsistent with the principles of open government, as well as the spirit of a Covenant agreement. There are two main issues:

- citizen preferences regarding regulation; and
- stakeholder views on consultation.

Citizen preferences regarding regulation

This lack of appropriate consultation with the general community is of even greater concern when the results of social research on citizens' views on packaging regulation are considered.

There are results from social research in Australia that provide a clear indication that the community is looking for a greater level of accountability and regulation of the packaging industry, for a greater share of the cost of recycling to be paid by producers and consumers rather than by local government and for government to play a role in the regulation of packaging. For example, a BIEC commissioned survey (BIEC 1997b) involving 250 residents from each of the four cities: Melbourne, Sydney, Brisbane and Hobart, explored a range of issues relating to recycling including questions on refundable and non-refundable levies[27] as well as attitudes to packaging and government regulation. Some of the relevant findings include:

Approximately 93 per cent of the sample either agreed or strongly agreed with the statement: 'Manufacturers, government and the community should work in partnership to cover the costs of recycling'. Approximately 86 per cent agreed or strongly agreed with the statement 'Manufacturers should contribute to the cost of recycling' but only 40 per cent agreed or strongly agreed with the statement 'Manufacturers should pay for all the costs of recycling their packaging'.

Approximately 85 per cent of the sample either agreed or strongly agreed with the statement 'The government should be involved in regulating packaging'. Approximately 77 per cent of the surveyed population supported refundable levies – a finding nearly identical across all cities (Sydney, Melbourne, Brisbane and Hobart) Approximately 38 per cent of the sample supported non-refundable levies and this support was the strongest in Sydney (46 per cent).

Of those who supported a refundable levy, 73 per cent were willing to pay 50¢ or more for a refundable levy on a 'two dozen' (i.e. 24) containers (equivalent to approx. 2¢ a container). This support (72–73 per cent) was maintained when the option for a single container was

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described for an equivalent of $1.00 per two-dozen containers (equivalent to approx. 4¢ a container). The results also indicate that respondents are more likely to agree to a refundable levy when it is expressed as an amount per container as opposed to an amount per 'two dozen'.

Regarding a non-refundable levy, approximately 33 per cent were willing to pay 50¢ per dozen containers, 33 per cent were willing to pay $1 per dozen containers and 28 per cent were willing to pay $1.50 per dozen containers (interpreted from figures 20–29, BIEC, 1997b).

A survey undertaken as part of the Independent Review of Container Deposit Legislation in NSW (ISF, 2001) has similar conclusions. 'The majority (68 per cent) of respondents stated that financial responsibility for the collection and recycling of containers should be shared between consumers and producers' (ISF 2001:Vol. III, p32).

Stakeholder views on consultation

Stakeholder satisfaction with the level of consultation and participation depended. Victorian Government and corporate signatories felt satisfied, while local government officers were less satisfied, because of the history of negotiations when the Covenant was developed. The NPC states that "all signatories to the Covenant recognise that a co-operative approach between industry and all spheres of government is essential to achieving national consistency in the life cycle management of packaging and paper" (Preface, NPC, 1999), but it does not state specifically that a wider group of stakeholders and the community should be consulted and included in the processes of development and implementation. By limiting consultation, citizens, consumer groups and non-government organisations have been both alienated from the process and prevented from furthering their awareness of the Covenant.

Since 1994, surveys of community attitudes to the environment and towards recycling have concluded that there is a significant level of community support for material recovery programs. However, it appears the high costs borne by local government to provide kerbside recycling services were poorly understood or known by the communities surveyed (NEPC, 1999, p.61). It is worth noting that one of the three objectives of the Covenant is to 'establish an approach that is collaborative so that management of packaging and household paper and implementation of collection systems produces real and sustainable environmental benefits that in a *cost effective manner'* (cl 2, NPC, 1999). Hence, it is easier in this context to understand the dissatisfaction with and lack of commitment to the Covenant by local government.

Although local government was involved in the initial development of the Covenant, the Australian Local Government Association (ALGA) withdrew from negotiations due to dissatisfaction with the amount of funding that industry was prepared to offer to cover the 'recycling gap' of costs. The ALGA claimed that local governments were bearing costs of $75– $100 million annually for kerbside recycling, while industry had offered $5.2 million at this point in discussions (WAMA, 1998a). Negotiations continued without local government internal involvement and the industry-led proposal for transitional arrangements was praised by ANZECC as an 'historical offer' (ANZECC, 1998). Local government was 'bitterly disappointed' with the decision (WAMA, 1998b).

Today the Local Government Association of NSW's Robert Verhey considers that the lack of 'political sign off' by local government has led to low commitment from these stakeholders (Verhey, 2003). The Local Government Association of Queensland, which is a signatory, wants all signatories to be involved in researching and establishing recycling systems before introducing new materials onto the market and into the kerbside recycling system, according to the Association's Bryce Hines. The Association anticipates that most local governments would support the Covenant if this were implemented. Through its own review of the

Covenant, local government is now seeking a consensus through which to participate in the future version of the Covenant (Bryce Hines, pers comm., 25/11/03).

In Victoria, EcoRecycle's Jon Ward considers that the Covenant's encouragement of partnerships along the supply chain has been an effective way to achieve business change and that the voluntary model of the Covenant, with supporting regulation, is an effective way to encourage "social change", such as reduction in consumption, changes in packaging types and recycling practices (Jon Ward, pers comm., 1/12/03).

As a corporate signatory, Visy's Nick Harford appreciates the supply chain discussions that the Covenant has encouraged on such topics as light-weighting and considers that it has resulted in better outcomes. Similarly to EcoRecycle, Visy supports the voluntary nature of the Covenant as it 'provides flexibility to take responsibility where possible, empowers companies to make changes and encourages supply chain communication' (Nick Harford, pers comm., 1/12/03).

2.2.9 Education and Communication

One of the twelve suggested options for inclusion in signatory action plans is to 'undertake education and community awareness programs' (Sch 2, NPC). This is interpreted as raising understanding of the NPC's aims and activities for all signatory organisations, stakeholders and the broader community.

Some corporate signatories, such as Visy, have found the Covenant has raised awareness within the company for environmentally sound packaging, has increased communication throughout company due to senior management commitment to the NPC and has strengthened the 'closed loop' concept (Nick Harford, pers. comm., 1/12/03). Similarly, Anchor's Alan Slade claims increased awareness regarding the NPC owing to its inclusion in weekly staff communication sessions (Alan Slade, pers. comm., 1/12/03).

Other corporate signatories, however, have found that only senior management have been aware of the NPC, or that the NPC is only understood in the packaging department, leaving upper management without understanding (Nolan ITU, 2003). Government stakeholders have concerns about the lack of awareness and education associated with the NPC. The Local Government Association of NSW's Robert Verhey feels the Association has received minimal information about changes to packaging types and their recyclability. EcoRecycle Victoria's Jon Ward would like additional education to guide, support and provide a framework for action plans (Jon Ward, pers. comm., 1/12/03), while Jane Mallen-Cooper of the NSW Department of Environment and Conservation would like to see a high profile communication strategy linked with any future packaging product stewardship (Jane Mallen-Cooper, pers. comm., 3/12/03).

In terms of community awareness, the NEPM requires jurisdictions to impose on brand owners the statutory obligation to demonstrate that reasonable steps have been taken to ensure that consumers are adequately advised on how packaging is to be recovered (cl 9(2) NEPM, 1999). However, it is the NPC that is intended to be the first point of reference for packaging policy for the community. Several internet searches found mention of the NPC only on government sites, the Packaging Council of Australia website and where individual signatories have placed their action plans on their company website, reflecting perhaps that the general community is not discussing and/or is not aware of the relevance of the NPC in broader environmental discussions.

The discussion around the NPC and its successes have often been based on the encouragement to industries to think about the design of packaging and to encourage minimisation and light-weighting. These are tasks that overlap with a number of initiatives that have taken place at the state and Commonwealth government level over a number of

years, including initiatives by Environment Australia on 'design for the environment', as well as cleaner production and eco-efficiency initiatives. NPC activities in relation to education and communication, such as they are, do not seem to be operating in a context that is integrated with these other past and current initiatives.

A packaging policy framework that aimed to increase general awareness within industry and in the community about the goals of reducing packaging waste would require a national program or strategy, with clear goals and measurable outcomes, that incorporated community awareness raising; support for industry in the form of cleaner production and design for the environment; and support at the local government level in relation to household packaging waste. The Covenant system has not provided such a national program or strategy on packaging waste.

2.2.10 Administrative Simplicity

A packaging policy should be as simple as possible to administer when achieving policy goals. Administrative complexity can lead to excess administrative funds being incurred (in terms of salaries and other costs), in addition to time delays and complicated and potentially intimidating processes. As suggested in Amcor's most recent action plan as a signatory, the company is hoping for a 'tightening of the key administrative procedures and signatory reporting requirements' in the future (Sutton, 2004).

The administrative aspects of the Covenant system are focussed on the tasks of increasing the number and coverage of signatories and the preparation and review of action plans (see action plan validation process in *Appendix A*), although the preparation and review of action plans do not in themselves result in a measurable reduction in the generation of packaging waste, particularly as the action plans do not require any specific targets. There is also a focus on the collection and disbursement of funds for agreed purposes. For accomplishing these tasks, there are a large number of organisations, including the National Packaging Covenant Council, the National Packaging Covenant (Transitional Arrangements) Industry Association, the national Kerbside Recycling Group, the state-based Jurisdictional Recycling Groups and the Environment Protection and Heritage Council. None of these organisations have adopted an over-arching coordination role or can provide information regarding specific aspects of the NPC.

Considering the criteria of administrative simplicity in the general context of a policy, the existing structure is legitimate and workable. However, if this criterion is considered specifically in the context of a packaging waste reduction policy, the structure is unnecessarily complex and lacks central coordination. In addition to the large number of organisations (listed above) that each performs one specific and separate function, the administration is mis-focussed. Instead of concentrating on the concrete outcome of reducing packaging waste, the administrative structure is concerned with increasing the number of signatories and on delivery of action plans. Indeed, these two aspects are also used as indicators of the NPC's success, although neither demonstrates waste reduction. Thus, a simpler, centralised and coordinated administrative structure would achieve smooth and effective delivery of concrete waste policy objectives.

2.3 Assessment of the NPC action plans

In 2002, the NPC Council commissioned a review of signatories' action plans. The review was intended to identify the extent to which action plans under the Covenant had changed business practices and contributed to continuously improving environmental performance and to identify gaps and issues to be addressed by the Council. GHD, the firm selected to conduct the review, analysed 104 action plans, ranging over the spectrum of signatories. The consultants selected criteria from those provided within the Covenant, as described in Section 1.3.4 of this review and supplemented these with up to 12 'sub criteria' also extracted from the NPC. GHD assessed and scored each action plan on the number of issues addressed and the

level of detail supplied, assuming that more detail reflected greater planning, thus greater commitment and increased likelihood of implementation. Overall, on the basis of the scoring system developed by GHD, most action plans achieved an average score of 50%. Scores above 80% were only achieved by industry associations for their development of performance indicators and by local government associations (of which two action plans were reviewed), for the criteria of design, market development, covenant principles, community education, performance data and addressing Buy-Recycled barriers (GHD, 2002).

The GHD review was very broad and does not make specific comments regarding individual signatories or action plans. The criteria were derived directly from the NPC and thus the action plans were assessed in terms of whether they had mentioned specific issues and within the confines of the NPC, which limits the range of findings and recommendations.

The GHD review highlighted three areas of achievement, based on its assessment methodology, as described below.

Working with the Packaging Supply Chain: The GHD review stated that, 'there is strong evidence that companies are working with other stages of the supply chain to address issues outlined in the NPC. Many companies indicated they were negotiating and working with their suppliers and customers on issues relating to packaging. A number had formally requested changes in packaging materials from their suppliers. These actions are at the heart of the Covenant initiative. This is strong evidence that the NPC is successful' (GHD, 2002, p.11).

This achievement is considered to be at the 'heart' of the NPC, which states one of its three main priorities to be establishing a 'collaborative approach between all sectors of the packaging supply chain and all spheres of government' (ANZECC, 1999, p.1). This conclusion may have been based on the criteria 'Packaging Supply Chain', which includes the sub-criteria of contributing to effective environmental management, participating in other initiatives/ programs, minimising packaging through design changes and considering the waste hierarchy (GHD, 2002, p.8). While no specific examples were provided of individual signatories' initiatives and achievements, the following sectors achieved scores of over 50%, based on the GHD scoring method, for the listed initiatives:

Raw material suppliers: supplying materials in bulk, light-weighting packaging and 'reviewing opportunities to include recovered materials' in packaging.

Packaging manufacturers: working with organizations on either side of their own in the supply chain, light-weighting, minimising waste in their own operations and promoting the waste hierarchy.

- Brand owners: reducing packaging around their goods and waste from their operation plants.
- Packaging fillers: minimising packaging of their products and in their operations.
- Distributors and retailers: packaging design, production and distribution.
- Industry associations: participating in government, NGO or other programs and for considering the waste hierarchy (GHD, 2002, pp 12-31).

The difficulty that arises in evaluating this assessment, is that the scoring system is based on signatories' action plans making reference to this criteria, rather than providing evidence or measurable performance indicators of having made progress in meeting this criteria. This is a fundamental shortcoming of the action plan process and therefore of the GHD evaluation.

Quality of action plans: The initial conclusion in GHD's evaluation stated that 'the length of or extent of formatting of an action plan does not necessarily correspond to the 'quality' of the action plan. Many of the 'highest scoring' action plans consisted mainly of a table listing actions relevant to various aspects of the Covenant, corresponding targets and assigned resources' (GHD, 2002, p.ii). This observation was further expanded by noting that a large portion of the action plan was actually 'padding' and that 'activities were buried in the text' (GHD, 2002, p.32). Due to the variety of reporting styles and companies having considerable discretion as to what measures they set in their action plans to meet compliance with the Covenant obligations, GHD recommended that a standard reporting protocol for annual reports and action plans for each sector should be implemented (GHD, 2002, p.43).

Involvement of CEOs and incorporation of NPC in business plans: The GHD review concluded that 'CEOs/ Senior Management are involved [in the action plans]' and that the 'Covenant is being incorporated into business plans- it is no longer just seen as an environmental initiative' (GHD, 2002, p.ii, 41). The criterion from which this conclusion has been drawn is unclear and this issue is not explicitly described in any other part of the review. This raises concerns as to what information this conclusion is based upon.

The GHD review also made some recommendations to improve the action plan reporting process, as described below.

Commitments and Achievements: The GHD review found that, since a number of signatories had requested changes in packaging materials from their suppliers, this was 'strong evidence' that the Covenant was succeeding. However, as of 2002, when the review was undertaken, GHD suggested actions to specifically reduce packaging and set targets for reduction that were anticipated 'over time', raising concerns that less had been achieved than expected and whether much could be achieved in the remaining two years of the current Covenant (GHD, 2002). Interestingly, at the time of this review, when there were 520 signatories, only 200 action plans had been lodged, which raises concerns about why the remaining 320 signatories have not prepared and submitted action plans.

Environmental Code of Practice: The GHD review pointed out that signatories to the Covenant are expected to 'seek wider recognition of the Environmental Code of Practice for Packaging', but concluded that the Code was 'rarely mentioned in action plans'. Indeed, the review concluded there was 'poor awareness' of the Code and recommended that companies refer to the Code in their action plans (GHD, 2002).

Data and Measurement: The GHD review noted that 'few of the action plans included details on data collection, measurable targets or assigned resources' for the implementation of the action plan, which reflects non-compliance with the suggested option in the Covenant of 'measurable performance objectives' in each action plan. The greatest effort that most signatories made towards data collection, measurable targets, or committed resources was to conduct studies to develop appropriate responses to the Covenant requirements (GHD 2002).

The NPC Council has chosen to await the findings of the current Council-commissioned review of the Covenant before implementing any recommendations (Barbara Butt, pers. comm., 3/12/03).

To gain an independent perspective for this current review, six action plans were representatively selected to cover industry associations, large grocery and restaurant chains and a filler. The action plans that were selected were from the Packaging Council of Australia (2003), Beverage Industry Environment Council (2002), Woolworths (2003), Coca-Cola - Amatil (2003), Lion Nathan Australia (2002) and McDonald's (2002).

The Packaging Council of Australia's (PCA) Action Plan does not provide evidence of clear ways in which the packaging will be directly reduced or recycling will be increased. While the PCA is an industry representative group and does not directly produce packaging, its role is to instead 'provide effective leadership and representation on major issues which impact on the packaging industry' (Packaging Council of Australia, 2003).

The Beverage Industry Environment Council (BIEC), also an industry representative group, does not directly produce or manage packaging, so this action plan addresses specific BIEC commitments under the Covenant. While BIEC states that it is only responsible for post-consumer waste, the action plan lists activities relating to the manufacture or filling of beverage containers, as well as littering and recycling behaviour and practices. The action plan provides a background, list of issues, review and rationale for each given change and commitment (BIEC, 2002). The BIEC action plan shows the production of beverage packaging and light-weighting, but not recovery rates, despite the fact that this information has been collected in the past as part of the reporting requirements under the NSW Industry Waste Reduction Plan. As indicated in Appendix B and C there is a major discrepancy between the BIEC data on the generation of packaging and data from market research sources. The BIEC data fails to provide sources, breakdown or explanatory notes as to the beverage categories included or the methodology. As indicated in Section 2.2.4, the requirements for developing a mass balance model for this sector are not onerous and represent a base level of analysis from which to develop strategies to reduce waste. It is not clear from the BIEC data on generation of packaging which beverages are included and a separate analysis of the likely beverage volumes in 2002 (see Section 2.2.4) differs significantly from this data.

The Woolworth's Action Plan sets out actions, measures and targets, unlike other signatories' Plans, but it is limited in scope and focuses mainly on reducing or changing materials in plastic bags, rather than providing details of strategies or efforts that would impact on the packaging of products it stocks, or their post-consumer fate. It emphasises community or school education efforts, such as supplying heritage posters to schools. With plastic bags being a significant impact arising from its supermarket chains, it is appropriate that some of the actions include introducing plastic bags with recycling content, increasing the recycling of plastic bags, investigating the use of biodegradable bags, reducing the number of plastic bags issued by 25% by the end of 2004 and reducing plastic bag litter by 75% by the end of 2005. However, there is no mention made of facilitating the recovery or remanufacture of plastic bags (Woolworths Ltd, 2003).

The Coca-Cola Amatil (CCA) Action Plan lists specific actions achieved to date, including packaging improvements, minimising manufacturing waste and managing litter. While this is a detailed action plan with clear actions matched against target dates, there is no mention of the Environmental Code. One of the most significant impacts of packaging waste from Coca-Cola Amatil's operations is post-consumer beverage containers. Under the category of disposal, there are no actions suggested to increase the recovery rate either from kerbside systems or away-from-home recycling. Indeed, most of the actions in this category involve managing and increasing recycling for waste from CCA's manufacturing facilities (CCA, 2003).

The Lion Nathan Australia action plan's annual report shows little completed progress and minimal intended actions. The actions involve discussions and a survey of suppliers, assessing environmental information on packaging and labels and a plan to determine Key Performance Indicators within twelve months to develop benchmarks and performance measures. It is doubtful whether, under this action plan, any significant environmental changes will be made. Significantly, Lion Nathan, for whom the greatest packaging waste issue is post-consumer recycling, plans to address its 'consumer packaging input' by supporting the Beverage Industry Environment Council and by merely engaging a consultant

to review current waste management and to establish guidelines for recycling (Lion Nathan Australia, 2002).

The McDonald's Action Plan lists objectives and commitments to address a variety of measurements, timeframes and target resources for packaging. This is a long and glossy document, with many references to pre-existing environmental initiatives, although very little addresses commitments under the Covenant. As the major packaging waste impact from McDonald's is from take-away food packaging, it is laudable to see the initiative to 'provide framework to reduce volume of waste sent to landfill by sourcing alternatives to landfill through waste disposal research and a series of trials'. This initiative involves three measurements: increasing waste diverted from landfill, researching feasible alternative waste disposal technologies and monitoring waste through tracking. However, there are no target percentages provided for diverting waste from landfill, nor a description of how the research and monitoring results will be implemented (McDonald's Australia Ltd, 2002).

Of note, despite the Covenant's requirement in Schedule 1 that 'all signatories must prepare an action plan on an annual basis', none of the signatories from which action plans were reviewed had submitted more than three action plans or annual reports of action plans in the four years of the Covenant.

In Table 3, a reference to any of the fifteen options suggested for action plans by the NPC (Schedule 1, NPC, 1999) was sought in each of the action plans and a 'tick' placed in the relevant place if such a reference was made. A reference to these criteria in the action plans does not imply any conclusions about the depth or adequacy of that reference.

Table 3: Reference to issues addressed in Covenant.

Options for action plan, specified by Covenant	PCA	BIEC	Wool-worths	Coca-Cola Amatil	Lion Nathan Australia	Mc-Donalds
Establish measurable performance objectives			✓			✓
Commit to improvement of environment and waste minimisation		✓	✓	✓	✓	✓
Develop material specifications for use of recycled products		✓	✓			✓
Support kerbside collection	✓	✓				
Implement best practice collection		✓				
Contribute to R&D into product design		✓	✓	✓	✓	
Support the development of markets for recycled materials			✓			
Provide labels and information for the community		✓	✓		✓	✓
Undertake education and community awareness	✓	✓	✓	✓		✓

Co-operate in collection of relevant data						
Alter logistics systems to reduce environmental impacts		✓	✓	✓	✓	✓
Mention product Stewardship (Section 4 of Covenant)	✓	✓				
Clearly address Roles and Undertakings (Section 5 of Covenant)						
Mention the Environmental Code	✓	✓	✓	✓	✓	
Mention contributions to Transitional Funds	✓	✓	✓			

Source: Information is taken from the National Packaging Covenant (1999) and action plans of the Packaging Council of Australia (2003), Beverage Industry Environment Council (2002), Woolworths (2003), Coca-Cola Amatil (2003), Lion Nathan Australia (2002) and McDonald's (2002).

As Table 3 demonstrates, very few action plans provide measurable performance objectives. Of those that do, they are general and often non-numerical. For example, McDonald's commits to 'encourage and assist the development of innovative packaging within the supply chain' and the results of this initiative will be measured by 'changes to existing materials and products so that they are environmentally preferable' (McDonald's, 2002). None of the selected action plans provided information resulting from the collection of data, or mentioned the collection of relevant data on packaging waste reduction and recycling, despite this being one of the core principles of the NPC. The Covenant states that all action plans will be assessed to ensure that 'roles and undertakings' are addressed (cl 5, NPC, 1999), but none of the selected action plans addressed did so. There was limited indication that signatories were striving for 'best practice' waste collection, or developing markets for recycled materials. However, there were several references to the following:

- the development of objectives for environmental protection and waste minimisation;
- to research and development into product design to reduce waste;
- education and information, including labelling for community awareness; and
- alterations to logistics and products to reduce waste.

Overall, without recommended reporting guidelines or structure, it is very hard to compare the action plans, but this brief assessment demonstrates that few of the issues mentioned in the NPC have been addressed, let along how thoroughly addressed.

There is a range of opinions of the NPC's action plan requirements from representatives of industry signatories including comments on the lack of guidance for producing an action plan and the lack of appropriate criteria against which to judge their performance. In interviews with signatories, Anchor Packaging's Alan Slade has not found the action plans difficult to compile and has relied on existing action plans of other companies for additional ideas to incorporate within their own plan (Alan Slade, pers. comm., 1/12/03). Nick Harford of Visy regard the action plan requirement as a success in encouraging corporations to produce a public document with stated commitments and the potential to develop reporting standards and identify poor performance dimensions of a company, although he recognised the lack of a reporting framework for smaller companies that do not have in-house environmental knowledge or resources (Nick Harford, pers. comm., 1/12/03).

Local government stakeholders are directly critical of the action plan process. The Local Government Association of Queensland's Bryce Hines would like quantifiable and identifiable targets to report against. He considers this aspect to be currently unclear and thus a risk of the Covenant being perceived as a 'buy-off' for signatories, without any follow-up action (Bryce Hines, pers. comm., 25/11/03).

EcoRecycle Victoria's Jon Ward considers the action plans as possibly assisting packaging reforms in the supply chain. However, he recognises there is a range of quality in the action plans, with some signatories introducing new products that have not been thought through in respect of packaging impacts. Overall, EcoRecycle's Jon Ward considers that the action plans have not transformed the packaging sector in the first five years, but have developed some good examples to set a benchmark for the future. In the next version of the Covenant, EcoRecycle wants to see best examples become the standard for companies and this could be achieved through stronger guidelines supporting action plans (Jon Ward, pers. comm., 1/12/03).

3 ALTERNATIVE PACKAGING POLICIES

This review has assessed the current voluntary National Packaging Covenant under which packaging waste should be minimised. This section identifies key principles for a best practice packaging policy framework, then explores working examples drawn from both Australian and international settings to suggest the potential benefits of alternatives to the current framework. It describes Extended Producer Responsibility in its context as a working policy framework, the Dutch Packaging Covenant as a working waste minimisation policy, the use of targets by both the European Union and British Columbia and the use of Life Cycle Assessment as a tool for prioritising changes to the packaging supply chain.

These ten key performance criteria established in Section 2 can form a set of principles for a best practice policy framework. As discussed in this review, the National Packaging Covenant in its current form has been unable to effectively meet all these criteria. For this reason, the following discussion will examine other possible policy instruments to meet these criteria.

This section does not attempt to address in detail the feasibility or relative merits of these policy frameworks in the NSW or Australian context. Rather, its purpose is to enable the reader to understand that the Covenant system is only one of a broad range of possible options for regulating packaging in Australia. In this context, the following sections are provided:

- A packaging policy framework – EPR
- A Packaging policy Case Study – The Dutch Covenant
- An EPR Instrument – The use of targets
- A methodology for prioritising products – Life Cycle Assessment

3.1 Extended Producer Responsibility: A policy Framework

Best practice packaging policies incorporate the principles of Extended Producer Responsibility (EPR) and/or shared responsibility. The latter is essentially a statement of same principle – both imply all stakeholders in the packaging chain are responsible for the impacts of packaging to an extent and thus have a role to play. EPR acknowledges that the current responsibility is heavily weighted at the bottom of the packaging chain and thus there is a need to shift some of this responsibility further up the chain. EPR is therefore discussed in this section as an overarching framework within which any packaging policy should operate.

When applied to packaging waste, an EPR framework aims to ensure both producers and consumers share the financial and/or physical responsibilities for the environmental and economic impacts of packaging waste from production to final disposal or recycling (‘cradle to grave’ or ‘whole-of-life cycle’). In Australia, the current responsibility for packaging waste is unevenly weighted at the bottom of the packaging chain, as exemplified by the fact that local councils heavily subsidise kerbside recycling schemes. Thus, there is a need to shift some of this responsibility further up the chain. EPR is discussed in this section as an overarching framework within which many packaging policy ideas could operate.

Implementation of a packaging policy within an EPR framework can involve a range of policy instruments. According to the OECD (2001), there are three basic categories of EPR instruments, which can be used alone or in combination:

- Take-back of packaging by producers;
- Economic instruments to provide a financial incentive for EPR (e.g. deposit-refund systems, advance disposal fees, taxes on products or materials used and upstream taxes paid by producers to subsidise waste treatment); and/or
- Progressive performance standards (e.g. minimum recycled content requirements).

Table 4 provides working examples of such EPR instruments both in Australia and internationally. These EPR instruments can be implemented by a continuum of approaches, ranging from fully voluntary to mandatory (OECD, 2001).

Table 4: Instruments to Extend Producer Responsibility

EPR strategy	Designed to achieve	Example
1. Take Back:		
a) Product take-back	Reduce materials input, encourage cleaner production and encourage reuse/recycling.	The Swedish system of take-back for electronic and electrical equipment
2. Economic Instruments:		
a) Deposit-refunds	Encourage reuse/recycling and cleaner products.	South Australian Container Deposit Legislation.
b) Advance disposal fees	Provide funds for waste management of the product at the end of its life.	Austrian fees on refrigerators and Swedish fees on automobiles.
c) Materials tax	Cleaner production and reduced inputs of targeted virgin materials which may be toxic or difficult to recycle in favour of recycled or less toxic materials.	French and Japanese packaging laws.
d) Upstream combined tax/subsidy	Reduce virgin material input, increase recycling and alter product design.	Danish packaging tax.
3. Standards:		
a) progressive performance standards	Minimum standards for product content, such as recycled material. Can be progressively raised to encourage innovation.	UK newspapers are currently required to have 50% recycled content, with a target of 80% being considered.

Sources: (OECD, 2001; Institute for Local Self Reliance, 2000; European Union, 2004).

An Australian policy to reduce packaging waste could involve a variety of EPR instruments in order to achieve the following goals:

- ***Reduction in generation of packaging waste***: through providing financial incentives to producers, by requiring packaging take-back by producers and by setting performance/ content standards that are progressively increased;
- ***Shared Responsibility***: the nature of EPR is that more responsibility is taken by the producers at the start of the supply chain, rather than being borne principally by local councils through the cost of kerbside recycling; and
- ***Cost-effectiveness***: economic instruments can provide incentives to find the most cost-effective solutions to packaging waste production and management.

3.2 The Dutch Covenant: A Packaging Policy Case Study

This section looks at a case study of a packaging waste policy: The Dutch Covenant. The Netherlands implemented a national packaging covenant in 1991 and, similar to the Australian Covenant system, has a back-up regulatory instrument to ensure compliance. The Dutch covenant is a 'negotiated agreement' with material take-back and recycling targets between government and industry under private law. Companies voluntarily sign up to the Covenant and are then legally bound by its conditions. Non-signatory companies must instead meet the mandatory recycling targets provided for in the EU Directive on Packaging and Packaging Wastes, as described below in Section 2.3 (OECD, 1998).

Unlike the Australian NPC, the Dutch Covenant has a definitive set of goals that aim for:

- no increase in the amount of packaging generated;
- elimination of landfilling of packaging waste; and
- qualitative waste reduction by substituting hazardous compounds with environmentally benign materials (OECD, 1998).

In 1991, the Dutch Covenant developed the following targets:

- to reduce the total amount of packaging to the 1986 level by 2000 and, if possible strive for an additional 10% reduction;
- to promote re-usable packaging, with a target of 60% recycling of disposable packaging; and
- to prohibit packaging disposal in landfills.

These reductions were anticipated to be achieved through using pre-existing channels for take-back of glass, PET, cardboard and paper (OECD, 1998).

The Covenant has been progressively revised and is currently in its third version. According to an analysis by the European Organisation for Packaging and the Environment (EUROPEN), the Dutch Covenant has only achieved its environmental goals with 'mixed success'. While manufacturers exceeded the recycling target for packaging made of wood, it did not achieve the targets set for recycling of packaging consisting of paper or glass and only narrowly failed to meet the targets for recycling of metal and plastic packaging (EUROPEN, 2003, cited in WRI, 2003), as shown by the comparison against the targets in the table below.

Table 5: Recycling achievements under the 3rd Dutch Covenant, 2001

Packaging Material	Recycling- target	Recycling- achieved
Paper/ cardboard	85%	66%
Glass	90%	78%
Metal	80%	78%
Plastic	27%	24%
Wood	15%	27%

Source: EUROPEN, 2003, cited in WRI, 2003.

As part of the negotiations to develop this latest version of the Dutch Covenant, industry and government aimed to reduce the disposal of beverage containers to landfill by two-thirds by the end of 2003. If this target is not met, a compulsory deposit of 0.25 euros (US$0.23) will be placed on these containers from January 2004.

The Dutch Covenant was developed as a tool for implementing EPR while still providing industry with the flexibility to self-regulate for optimal and efficient ways of improving the environmental impact of packaging and packaging waste. While Life Cycle Assessment is an underlying principle of the Covenant, each company is encouraged to use LCA to determine priorities and options, thus allowing 'market forces the flexibility to determine the most environmentally-sound and suitable option for the use of packaging' (OECD, 1998, p.14).

To monitor the effectiveness of the Dutch Covenant, a database contains input data of new packaging introduced into the market and output data of packaging processed as waste, although covenant administrators have found it difficult to obtain consistent data to demonstrate packaging trends. Annual reports are provided to detail the effects of implemented measures and data collection and these were found in an OECD review to increase the credibility and transparency of the Covenant's effectiveness (OECD, 1998).

While the Dutch Covenant has many similarities to the Australia Covenant system, there are several important aspects of the Dutch model that could be adopted for an effective Australian policy, namely:

- Reduction in generation of packaging waste: the targets of the Dutch Covenant set dates and amounts by which to reduce packaging waste and increase recycling;
- Compliance: non-signatories are immediately required to meet mandatory recycling targets of the EU Directive on Packaging and Packaging Wastes;
- Measurability: the Dutch Covenant collects input data of new packaging introduced into the market and output data of packaging processed as waste into a central database; and
- Clear Objectives: the goals set by the Dutch Covenant are clear and unambiguous.

3.3 Use of Targets: An EPR Instrument

This section discusses the EPR instrument of targets, which are a form of standards. Targets can be an appropriate regulatory approach if they:

- have been demonstrated to provide net environmental, social and economic benefits,
- are consistent with those shown to be achievable elsewhere and
- have a means of being raised in the future to stimulate further improvements.

Two examples of the use of targets to reduce packaging waste include the European Union and British Columbia, Canada. The European Union's Directive on Packaging and Packaging Wastes was developed in 1994 to 'harmonise national measures concerning the management of packaging and packaging waste to provide a high level of environmental protection and to ensure the functioning of the internal market' across the EU member states. The Directive covers all packaging and packaging waste in the community and requires that member states implement measures to prevent the generation of packaging waste. Each member state must develop a system to achieve the return and/or collection of used packaging to achieve the targets of:

- Between 50% and 60% of materials recovery and
- Between 25% and 45% increase in recycling, with a minimum of 15% by weight for each packaging material (European Union, 2004).

In order to provide transparent proof of progress to the broader community, member states are required to establish compatible databases on glass, plastics, paper, fibreboard and metal packaging and packaging waste (European Union, 2004).

An interim report in 1999, five year's after the Directive was introduced, found that one-third of the packaging for soft drinks, mineral water and wine (mainly glass and PET) in the European Union is reused and that the targets set by the Directive were 'realistic' (European Union, 2004). Due to the Directive's success, ambitious targets for recovery and recycling for most states were agreed to in September 2002. These revised targets require that by June 2006 there would be:

- Between 60% and 75% recovery,
- Between 55% and 70% recycling in total, with specific targets of:
- 60% recycling of glass,
- 55% recycling of paper and cardboard,
- 50% recycling of metals and
- 20% recycling of plastics (mechanical and chemical recycling only) (European Union, 2004).

Although each EU member state has implemented the EU Directive differently, the aim of the Directive is to provide a common policy framework for a number of different countries that have widely different policy frameworks and so represents a 'lowest common denominator' approach. This differs from Australia's national packaging framework, which is adopted in an identical way by each signatory.

In the UK, Valpak is a nation-wide compliance scheme developed in response to the Directive for companies that have both an annual turnover of more than £2 million and handle 50 tonnes or more of packaging. Recycling and recovery of packaging waste is funded by company contributions which is invested into the recycling industry to improve collection systems, increase capacity, create end markets for recycled products and develop recycling technology. The companies must purchase Packaging Recovery Notes (PRNs) that represent a certain tonnage of recycled material from the material re-processors to certify that the company's recycling quota has been met (Valpak, 2001).

Similar to the European example, the Government of British Columbia in Canada set a target in 1997 for brand owners to:

- meet a recovery rate of 85% for all beverage containers except milk by October 2000 and
- to set up collection centres that are convenient for consumers and provide province-wide coverage (Southam Environmental Group, 1998).

Within two years, it was concluded that over 84 percent of the province's 1.3 billion containers were being recovered, with the new targets collecting 300 million additional containers each year (Lease, 2000).

An effective Australian policy to minimise packaging waste could use targets to achieve:

- Reduction in generation of packaging waste: by setting targets for the reduction in the generation of packaging and the disposal of packaging waste to landfill;
- Measurability: similar to the EU Directive, developing a harmonised database to monitor the amount of packaging that is produced and recovered;
- Transparency: requiring producers to show proof that their recycling and recovery target is met, for example by adopting the UK's systems of purchasing Packaging Recovery Notes; and

- Administrative simplicity: allow producers and other organizations along the packaging chain to develop their own response to meet targets to reduce the need for external administration.

3.4 Life Cycle Assessment: A technique to prioritise packaging

This section discusses the material accounting technique of Life Cycle Assessment (LCA), which can be used to analyse the environmental impact of products or processes over their whole-of-life cycle. The methodology involves quantifying the environmental impacts from source to disposal or re-use, in terms of greenhouse gas emissions, energy use, water use, landfill impacts and other indicators. LCA has been formalised to international standards under ISO 14040 and 14042.[28]

In terms of packaging, LCA is a useful tool to determine the environmental benefits and impacts associated with packaging waste management options, such as refillable and disposable packaging. In Australia, LCA has been used in three significant waste studies amongst others: the *Independent Assessment of Kerbside Recycling in Australia,* commissioned by the National Packaging Covenant Council (Nolan ITU and SKM Economics, 2000), the *Independent Review of Container Deposit Legislation* (ISF, 2001:vII) and *Life Cycle Assessment for Paper and packaging Waste Management Scenarios in Victoria,* commissioned by EcoRecycle Victoria (Grant et al, 2001).

The *Independent Assessment of Kerbside Recycling in Australia* used LCA to assess the environmental impacts of more than fifty resource inputs and pollutant outputs for each aspect of the current kerbside recycling system. The main environmental indicators assessed against were resources, regional and metropolitan landfill, traffic, global warming potential and air and water pollution. The environmental benefits and impacts were then converted to dollar values for easy comparison using publicly available sources such as load-based licensing for pollution discharge. The main environmental benefits of recycling were avoiding raw material extraction and manufacture, landfill and transportation impacts, totalling $71 per household per year ($/hh/yr). The main environmental impacts of recycling were the emissions of collection trucks, totalling $3/hh/yr, thus providing an overall environmental benefit of $68/hh/yr. The authors concluded that 'the total national environmental benefit of kerbside recycling is estimated to be $424 million per year'. They stated that recycling yields are the 'single most important factor' in the environmental performance of the kerbside recycling system (Nolan ITU/SKM Economics, 2000, p.v-vii).

The *Independent Review of Container Deposit Legislation* used LCA to compare various scenarios for collection and recycling of used beverage containers. It estimated the environmental impacts created by the manufacture of new beverage containers and recycling beverage containers in terms of greenhouse gas emissions, embodied energy, smog precursors, embodied water use and solid waste. The four options compared for beverage containers were landfill only, current kerbside recycling collection, implementation of intermediate depots for container deposit and Point of Sale container return. The results concluded that there was a net benefit associated with the use of a deposit and refund system, which would result in a doubling of the recovery rate of containers. Increasing the amount of container material that is recycled leads to increased environmental benefits for all indicators (ISF, 2001:vII, p.135). Refund systems have been previously considered by companies to be costly and onerous, however the issue of cost is not inconsistent with the principle of shared responsibility. In any event the magnitude of these costs would depend strongly on the extent to which industry were able to pass them on to consumers and also on the type of refund system established. Local government in contrast may realise financial benefits through

[28] ISO 14040 (1997), 'Environmental Management- Life Cycle Assessment- Principles and Framework' and ISO 14042 (2000), 'Environmental Management- Life Cycle Assessment- Life Cycle Impact Assessment'.

reduced costs of kerbside collection (ISF, 2001:vII, p.ii). Certainly the potential net benefits to be gained from such a system is compelling, as concluded by the Independent Review of Container Deposit Legislation in NSW and also the Multi-Stakeholder Recovery Project in the US (Beck et al, 2002).

The *Life Cycle Assessment for Paper and Packaging Waste Management Scenarios in Victoria* (Grant et al, 2001) used LCA to assess the environmental impacts of both paper and packaging waste management options in Victoria. The study was limited to waste collection through to material reprocessing (recycling) or landfill. The five environmental impacts assessed against were greenhouse gases, smog precursors, embodied energy, water use and solid waste. It was found that recycling resulted in net savings (hence benefits) in all environmental impact categories when compared to landfill. The study concluded that 'on a system-wide level, recycling provides substantial environmental savings originating from both avoided virgin material production and avoided landfill impacts' (Grant et al, 2001, p.xviii).

In Denmark, an LCA study of the environmental impacts of a packaging for beer and carbonated soft drinks was undertaken in 1998. The study was commissioned by the Danish Environmental Protection Agency in order to assist decision-making for beverage packaging to be filled and sold in Denmark. Denmark currently prohibits disposable cans and bottles and the resulting collection system experiences a return rate close to 99 percent for refillable glass bottles for beer and soft drinks and almost as high for refillable PET bottles (Danish EPA, 1999).

This study was initiated when Denmark was informed by the European Commission that the Danish prohibition on disposable cans and bottles was a trade barrier, although this contradicts the EU Directive of Packaging and Packaging Waste that states in the preamble, 'life-cycle assessments should be completed as soon as possible to justify a clear hierarchy between reusable, recyclable and recoverable packaging' (European Parliament and Council, 1994, cited in Ekvall et al, 1999).

The LCA study compared a 330mL glass refillable bottle, refillable PET bottle, disposable glass bottle, disposable aluminium can, disposable steel can and disposable PET bottle against the chosen indicators of energy demand, potential global warming, acidification, nutrification and photochemical ozone formation (Ekvall et al, 1998). The study concluded that the impacts across all indicators were significantly lower for the 330mL refillable glass bottle and refillable PET bottle, of which the current Danish bottle return system is comprised, than for disposable containers (Ekvall et al, 1999; Danish EPA, 1999).

LCA has also been applied in Germany to evaluate the comparative impact of packaging materials used in beverages. Similar to the Danish study, the environmental indicators against which the materials were compared against were smog precursors, water and terrestrial eutrophication, acidification, toxicity to humans and ecosystems, resource use, land use and global warming and all categories were ranked according to the ecological priorities determined by the German environmental agency. The materials compared were glass, PET, liquid paperboard, aluminium cans and tin cans (Prognos et al, 2000).

This German study, which was commissioned by the German federal environment agency (Umweltbundesamt), concluded that:

- Returnable PET were environmentally superior to returnable glass bottle systems;
- There was no environmental difference between returnable glass bottle systems against carton packaging systems; and
- Returnable bottle systems were environmentally superior to disposable glass, tin and aluminium containers (Prognos et al, 2000).

As demonstrated by the examples above, LCA is an effective tool, which can quantitatively assess which packaging materials should be minimised or avoided as a priority, on the basis of their relative environmental impact. By using LCA as such, an effective Australian policy could achieve:

- Reduction in generation of packaging waste: by reducing the identified priority materials;
- Transparency: publicly communicating which packaging materials are a priority and then monitoring the reduction of these; and
- Education and communication: using the results of LCA to communicate why certain packaging materials should be minimised or avoided as a priority.

4 CONCLUSIONS AND RECOMMENDATIONS

The National Packaging Covenant has not been performing satisfactorily as a packaging policy framework designed to reduce packaging waste generation and increase overall used-packaging recovery. While it may be responsible for achievements by individual signatories, the overall achievements are not substantial enough to recommend the continuation of the NPC as it stands. Thus, specific recommendations are made for developing a new, national, simplified and stronger packaging policy framework, involving the setting of objectives and targets, compliance and measurability.

It is recommended that the NSW DEC, in its deliberations on the future of the Covenant system, take a leadership role in developing a national regulatory approach to packaging waste by:

- specifying clear goals and outcomes for packaging waste as a whole
- including sector-based targets for the reduction of packaging waste to landfill and the reduction of resources and virgin materials used in packaging.

Examples of targets for sectors might include an 85% target for recovery of used beverage containers, similar to the target established in British Columbia and commensurate with recovery rates in South Australia. The Dutch Packaging Covenant (1991) sought to achieve a target of 60% recycling of disposable packaging, to reduce packaging levels to 1986 levels and to prohibit packaging disposal to landfill by 2000.

Such an approach would require a national packaging strategy that incorporates the following policy action areas:

- a framework for effectively ensuring compliance, potentially using the NEPM;
- clear, measurable targets for reducing packaging waste generated, by industry sector and waste type;
- a process for public participation and stakeholder consultation in the development of the strategy. The process is designed to influence the formulation of the objectives, scope and targets;
- a process for monitoring and data collection and reporting of progress against targets; and
- a national education and communication strategy, aimed at the community, industry and local governments.

The development and implementation of such a national strategy would need to be undertaken in such a way as to meet the ten performance criteria identified in this report. This means the following issues would need to be addressed in the strategy:

1. Reduction in generation of packaging waste

Strong, achievable targets, which are progressively raised over time, need to be set to reduce generation of packaging waste and the recovery and productive reuse or recycling of packaging, based on the best available life cycle analysis. This is consistent with OECD recommendations, which suggest that Australia focus on preventative measures that seek to reduce waste production, including better use of raw materials and energy (OECD, 2000). For example, a target of 85% recovery of beverage packaging, the largest single component of the packaging waste stream, would be appropriate, based on research previously undertaken (ISF, 2001) and international practice. The strategy will need to ensure that the away-from-home sector is addressed, as well as transport and secondary packaging. Targets should consider international best-practice, because Australia is currently considered a large generator of waste and a poor performer overall in recovery of recyclables, compared to many other OECD countries (OECD, 2000).

2. Compliance

An enforceable compliance system is a vital component to validating a regulatory or quasi-regulatory system. Penalties should be sufficient to act as a deterrent. Clear processes should be outlined to address non-compliance by signatories. The system should be clear about what is to be complied with and this should be guided by the collective goal of reducing packaging waste. The focus of compliance should go beyond the current priority of increasing the number of signatories and the preparation of action plans.

3. Measurability

Implement a consistent reporting framework for measuring the generation of packaging waste and the recovery, recycling or reuse of used packaging materials for each sector, measured against set targets. This reporting framework will include key performance indicators for each sector, the type of data required for each criterion and the period of reporting.

Construct a set of baseline data on trends for the production, disposal, collection and productive reuse and recycling of packaging, by material and by sector for the period of the existing Covenant (1999 to 2004). Collect this data using the same methodology, units and timeframe, to build a national database that is regularly updated, such as the planned update of the Australian Waste Database (AWD). The need to strengthen the AWD is supported by OECD recommendations for Australia, which are aimed at overcoming the lack of reliable, comprehensive information on the quantity and composition of waste streams. Provide clear definitions of packaging waste and any assumptions in order to limit the data requirements for secondary packaging.

4. Transparency

Establish a transparent and public reporting system for indicators of packaging generation and the recovery and fate of used packaging materials. Require information about the amount of funds currently held by the National Packaging Covenant (Transitional Funding) Industry Association, the criteria for allocating funds to projects and the outcomes of the projects to be reported and publicly available and accessible.

5. Clear objectives

Establish clear objectives through a robust process of public participation, with input from stakeholders and informed by the knowledge and research base that has been developed over recent years. Outcome-related[29] objectives should be measurable in order to evaluate the progress or effectiveness of the packaging waste policy.

6. Shared responsibility

A Life Cycle Assessment should be conducted of waste reduction options, so that the choice of options can assist in distributing the costs and responsibilities equitably along the packaging supply chain. Current financial losses borne by ratepayers (via local councils) for kerbside recycling should be reduced by establishing other collection routes, such as retail outlets and collection centres, for high volume, low value materials (e.g. glass and plastic containers). Establish a mechanism to collect used packaging material from the away-from-home sector and ensure that brand owners and retailers contribute to such a system in an equitable way.

Develop an approval system for accepting new products and packaging into the market. This will involve discussion with local government and the recycling industry regarding the recyclability of the product and potential for increased reuse.

7. Cost-effectiveness

Consistent with OECD (2000) recommendations for improving cost-calculation methods, broaden existing research on the costs and benefits of various packaging waste reduction options, to firstly, include impacts along the entire life cycle of packaging products and secondly, to consider non-financial impacts such as environmental and social costs and benefits. Including these will facilitate considering options to manage waste from other sectors, such as away-from-home and transport packaging. Specifically, using life cycle analysis, investigate the benefits of moving up the waste hierarchy from recycling in terms of reuse of used packaging including refillable beverage containers. This will test the conclusions arising from European LCA studies, which indicate a significant advantage of reuse relative to recycling.

Commission research, using verifiable data on collection and sorting, to quantify trends in contamination rates and to investigate the impact of co-mingled kerbside collection on these rates.

8. Consultation and Participation

Implement a robust public participation process to guide the development of the strategy. Public participation should contribute to the formulation of objectives, scope and targets. Such consultation processes must ensure the representation of a cross section of citizens and which incorporate deliberation (see Carson & Gelber, 2002).

[29] As opposed to process-related objectives.

9. Education and Communication

Develop a national education and communication strategy aimed at the community, at industry and local government level.

This strategy should ensure that consumers are informed about the impact of their purchasing choices at the point of sale.

Ensure that such a strategy is integrated with, is informed by and does not duplicate, past and current local, State and Commonwealth government initiatives on cleaner production, eco-efficiency, design for the environment and public communication.

10. Administrative simplicity

Implement administrative procedures that are as simple as possible for utmost effectiveness. Ensure these administrative procedures are directed toward the objectives of the packaging waste policy, that is, a reduction in the generation of packaging waste. Include clear reporting requirements and exemptions.

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APPENDIX A: COMPOSITION OF PACKAGING: FOOD AND BEVERAGE SECTOR

This Appendix provides the methodology, assumptions, data sources and calculations for estimating the approximate breakdown of the packaging waste by sector .

The rationale for using beverage packaging data by way of example is as follows:

- it is the best characterised sector in the packaging industry.
- beverage packaging is estimated to account for approximately 50% of all packaging based on this research.

Beverage packaging accounts for approximately 50% of all packaging. This result was derived from:

- Market research data (Euromonitor 2003a, 2003b, 2003c, 2003d): by comparing packaged food to beverages (dairy, alcohol and soft drinks) by using the ratio of the mass of product types as a proxy for the ratio of packaging mass. The data analysed is provided in Tables A-1 and A-2 below.

  Note: The resulting ratio, 71%:29% (beverages: food) is considered conservative, as the ratio (by mass) of a products packaging to its contents (ie. g of packaging /kg of contents) is likely to be significantly lower for food than beverages. There is limited literature available on the material intensity of food packaging (that is, the mass of food packaging per mass of contents). However some research that does exist suggests the average material intensity was 131g of packaging/kg of product in 2000 (Ecosys, 2003). This compares to BIEC (2003) data on the average material intensity for all beverage material types at 208g of packaging/L of beverage in the same year. Applying this material intensity ratio of 208:131 (beverage:food) to the previous ratio by mass of 71:29 (beverage:food) yields a weighted beverage: food packaging ratio of 80:20.

- Industry estimates: The Packaging Council of Australia estimate that beverage and food packaging make up approximately 65-70% of all packaging in Australia (PCA, 1999).

Table A-1: Composition of packaged food by sector.

	1998	1999	2000	2001	2002	2003
Confectionery ('000 tonnes)	133.18	137.58	142.06	147.53	153.44	159.47
Bakery products ('000 tonnes)	824.38	844.38	855.32	874.16	889.52	908.78
Ice cream ('000 tonnes)*	125.54	128.75	132.11	137.08	141.72	142.96
Dairy products ('000 tonnes)**	272.71	285.7	303.28	317.48	333.01	346.78
Sweet and savoury snacks ('000 tonnes)	86.66	91.61	95.35	98.02	102.02	106.09
Snack bars ('000 tonnes)	13.24	14.72	15.76	17.34	18.7	19.85
Meal replacement products ('000 tonnes)	0.49	0.46	0.44	1.07	1.31	1.54
Ready meals ('000 tonnes)	39.35	39.9	40.53	41.73	42.87	44.21
Soup ('000 tonnes)	37.1	40.04	41.23	42.56	40.83	39.21
Pasta ('000 tonnes)	80.35	80.79	81.48	83.42	85.38	87.56
Noodles ('000 tonnes)	19.93	20.95	21.63	22.87	24.38	25.66
Canned food ('000 tonnes)	298.57	303.31	306.25	310.12	311.75	313.5
Frozen food ('000 tonnes)	220.26	223.33	227.21	234.69	241.87	249.83
Dried food ('000 tonnes)	156.51	158.45	161.89	167.35	173.32	179.43
Chilled food ('000 tonnes)	40.43	41.9	43.47	45.14	47.02	48.9
Oils and fats ('000 tonnes)	154.85	148.9	146.19	145.43	146.25	144.91
Sauces, dressings and condiments ('000 tonnes	165.98	170.1	173.14	176.85	180.86	185.37
Baby food ('000 tonnes)	17.79	18.67	19.07	19.44	20.05	20.7
Spreads ('000 tonnes)	66.52	67.37	68.64	68.27	68.73	69.45
Packaged food (Not calculable)	-	-	-	-	-	-

Source: Euromonitor 2003b, 2003c).

** these icecream figures have been converted from Litres to Tonnes using an estimated density of icecream, 0.488kg/L.*

***these figures for Dairy Products are the non-liquid diary product data from Euromonitor (2003b)*

Table A-2: Composition of packaging waste by food and beverages.

	1998	1999	2000	2001	2002
TOTAL PACKAGED FOOD ('000 tonnes) *	**2,753.84**	**2,816.91**	**2,875.05**	**2,950.55**	**3,023.03**
TOTAL PACKAGED BEVERAGE ('000 tonnes) **	**7022.62**	**7154.82**	**7292.44**	**7366.67**	**7466.83**
Bev + Food	9,776.46	9,971.73	10,167.49	10,317.22	10,489.86
% food	28%	28%	28%	29%	29%
% beverage	72%	72%	72%	71%	71%

* *source: Euromonitor 'Packaged Food' plus 'Dairy food'*

** *assume density of average beverage is same as water (hence million Litres = '000 tonnes)*

** *source: Euromonitor for Alcohol + Carbonates + dairy beverage*

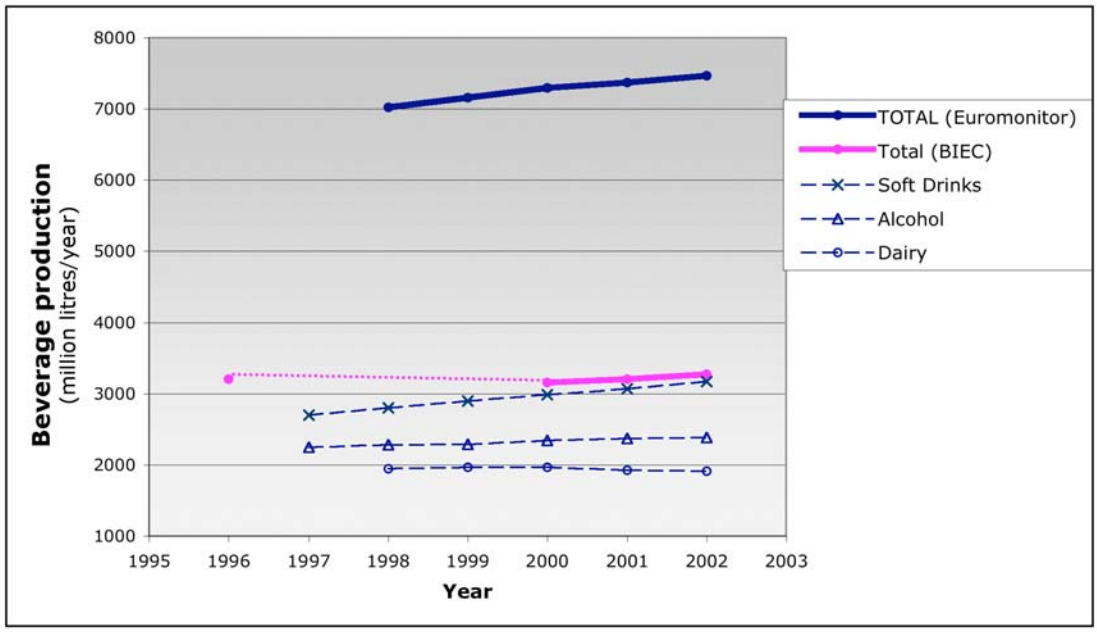
APPENDIX B: BEVERAGE PRODUCTION TRENDS

This Appendix provides the methodology, assumptions, data sources and calculations for estimating beverage production trends, and hence beverage container waste generation.

This research used market research data sourced from Euromonitor (an independent global market information database) to determine trends in beverage containers by volume, to cross-check BIEC data, and used BIEC data (2003) to convert volume of beverage into tonnes of packaging. The rationale for this approach is:

- The BIEC Action Plan (2003) provides production trends for aluminium, glass and PET by volume of beverage and by tonnes of packaging (BIEC 2003, p3). However the source of this packaging production data is not provided, and this research indicates that the data is likely to be unreliable.
- The total beverage packaging according to BIEC data is only slightly higher than soft drinks alone (see Figure B-1), not including alcohol or dairy beverages. This could be due to the exclusion of some beverage types from the total. No information is provided on the types of beverages that are included.
- BIEC also provide a measure of light-weighting in grams of packaging per litre of beverage. These figures are assumed to be accurate as they represent tonnes of packaging relative to volume of beverages, which separately may each be underestimates, however relative to each (ie. as a ratio) other are likely to be more reliable.

Figure B-1: Trends in total and sector beverage production in Australia.



** BIEC data has been extrapolated between the years 1996 and 2000.*
** BIEC data sourced from BIEC (2003).*
** Euromonitor data sourced from (Euromonitor, 2003a, 2003b, 2003d)*

BIEC (2003) data suggests that for the period 1997-2002 total beverage production increased by 2% (by volume) while the weight of packaging decreased by 11%) due to lightweighting.

However, the beverage production data is not considered reliable (see above). Aggregated Euromonitor data on beverages (Euromonitor, 2003a, 2003b, 2003d) indicates for the same period total beverage production is increasing at 9% (by volume). Production by mass of packaging material could not be determined for total production, only individual packaging types, as glass has a significantly higher ratio of packaging weight to contents.

APPENDIX C: GLASS PRODUCTION AND RECOVERY TRENDS

This Appendix provides the methodology, assumptions, data sources and calculations for estimating glass production and recovery trends.

Glass packaging production and recovery data is provided by way of example in addition to total packaging trends. Glass is used for this example because reliable data on glass recovery is available from Visy for NSW, hence comparisons of recovery to production can be made. Little reliable and consistent data is available for other material types.

Glass production trends

Analysis of the available reliable data (Euromonitor, 2003a, 2003b, 2003d) shows that contrary to BIEC data (BIEC, 2003), which suggests glass production for beverages is decreasing both by volume and mass, glass production for beverages increased by 10% (by volume of beverage) for the period 1997-2002[30] and 6% (by mass of packaging) for the same period. See Tables C-3 and C-5 and Figure C-1 below. The tonnes of glass packaging were calculated by converting the beverage volumes provided by Euromonitor data (in litres) to tonnes using the BIEC glass lightweighting trends data in grams packaging/litre of beverage (See Table C-4).

This net increase in glass production can be accounted for by the increase in alcohol packaged in glass (176 million litres between 1997-2002), which more than compensates for the decrease in soft drinks being produced in glass (down 44 million litres) in the same period (See Tables C-1 and C-2). This 176 million litre increase in glass production from alcoholic beverage sector is due to:

- the increase in wine sales (by volume), and the increased proportion of this wine being packaged in glass;
- the increase in the proportion of beer being packaged in glass, which over compensates for the reduction in beer sold (by volume)
- the increase in sales of FABs[31] (by volume) and the increased proportion of FABs being packaged in glass.

[30] The figures for 1997 have been extrapolated from 1996 for BEIC data only.
[31] Flavoured alcoholic beverages

Table C-1: Trends in alcohol production (million litres) packaged in glass, in Australia

1997			2002			Sub-category
% glass	total*	glass only	% glass	total*	glass only	
48%	1760.3	850.22	*52%*	1721.3	893.35	**beer (total)**
100%	18.1	18.10	*100%*	18.7	18.70	**Cider/Perry (on-trade)**
44%	66.6	29.30	*56%*	189.6	105.80	**FABs (total)**
38%	345.5	130.60	*47%*	406.5	190.65	**Wine (total)**
100%	54.2	54.20	*100%*	49.9	49.90	**Spirits (on-trade)**
	2244.7	**1082.43**		2386.0	**1258.40**	**TOTAL Alcohol (glass only)**
					175.97	***increase in alcohol production sold in glass over 1997-2002***

Source: Euromonitor (2003a)
** all totals in this column are on- plus off- trade*
Note: in all subcategories it is assumed there is a negligible difference in glass composition between off- and on- trade except for wine. For this sub-category. Australian Wine and Brandy Corporation statistics were used (2003) which indicate 46.9% of wine was packed in glass by volume in 2002 and 38% in 1997.

Table C-2: Trends in off-trade soft-drink production (million litres) packaged in glass, in Australia

1997			2002			Sub-category
% glass	total	glass only	% glass	total	glass only	
8%	1468.9	117.512	*3%*	1689.7	50.69	**carbonates**
13%	612.7	76.5875	*15%*	638.3	95.75	**fruit/vegetable juice**
2%	145.7	2.914	*3%*	263	7.89	**bottled water**
1%	51.7	0.517	*2%*	73	1.46	**functional drinks**
5%	132.5	6.625	*3%*	133	3.99	**liquid concetrates**
43%	0.6	0.255	*32%*	0.4	0.13	**RTD tea**
	2412.1	204.411		2797.4	159.90	**TOTAL soft drinks (glass only)**
					-44.51	**decrease in soft drink production sold in glass over 1997-2002**

Source: Euromonitor (2003d)
Note: these figure do not include on-trade, however it is likely that on-trade is predominantly post-mix hence not sold in glass.

Table C-3: Trends in beverage production packaged in glass (million litres) in Australia

1996	1997	1998	1999	2000	2001	2002	2003	Source
1024				*1045.3*	*946.5*	*933.6*		***BEVERAGE Total:*** *BIEC (2003) Action Plan 2002-03*
	1286.8					*1418.3*		***Total (Alcoholic and Soft) beverages:*** Euromonitor
	1082.43					1258.4		**Alcoholic** beverages: Euromonitor
	204.411					159.90		**Soft Drinks** beverages: Euromonitor
						-9%		**% change (1996-2002)** BIEC
						+10%		**% change (1997-2002)** Euromonitor

Table C-4: Trends in glass light-weighting (g of packaging/L of product) in Australia

1996	1997	1998	1999	2000	2001	2002	2003	Source
569	*566*			*550.7*	*545.9*	*545.3*		***BEVERAGE Total:*** *BIEC (2003) Action Plan 2002-03*
						-4%		**% change (1996-2002)** BIEC

Table C-5: Trends in glass production ('000 tonnes) for beverage packaging in Australia

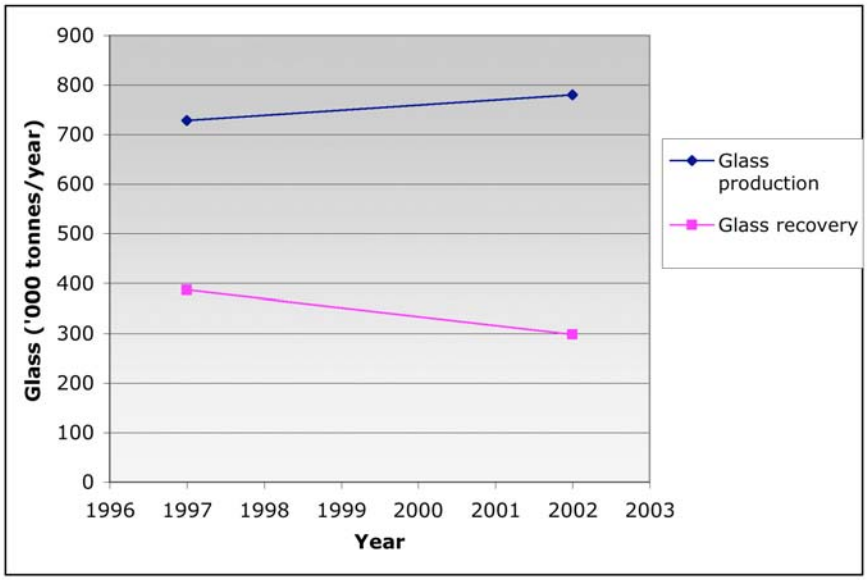
1996	1997	1998	1999	2000	2001	2002	2003	Source
582.4				*575.6*	*516.7*	*509.1*		***BEVERAGE Total:*** *BIEC (2003) Action Plan 2002-03*
	728.4					*773.4*		***Total beverages (Alcoholic & Soft):*** Euromonitor
						-13%		**% change (1996-2002)** BIEC
						+6%		**% change (1997-2002)** Euromonitor

Glass recovery trends

Data from various sources indicates recovery of glass in some jurisdictions is decreasing (by tonnes) in both NSW and Victoria, while production is increasing See Figure C-1 and C-2 below.

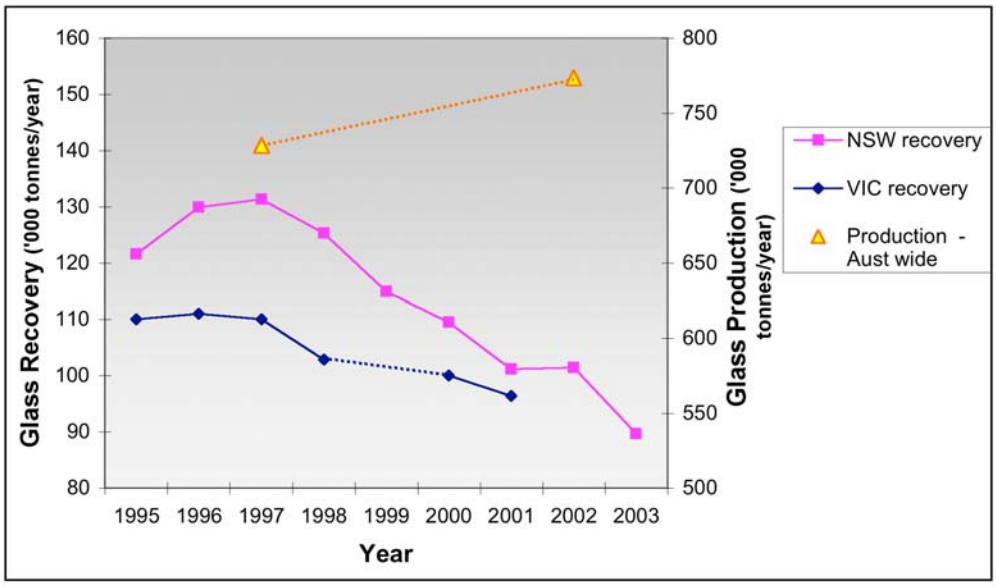
The estimated recovery rate of glass beverage packaging in Australia, as indicated by recovery/production (by tonnes), has decreased from 53% (1997) to 38% (2002).

Figure C-1: Glass production and recovery in Australia



Sources:
** data on glass recovery was sourced from VISY for NSW and extrapolated to Australia.*
** data on glass production was sourced from Euromonitor (2003a, 2003b, 2003d).*

Figure C-2: Glass recovery NSW and VIC and production in Australia

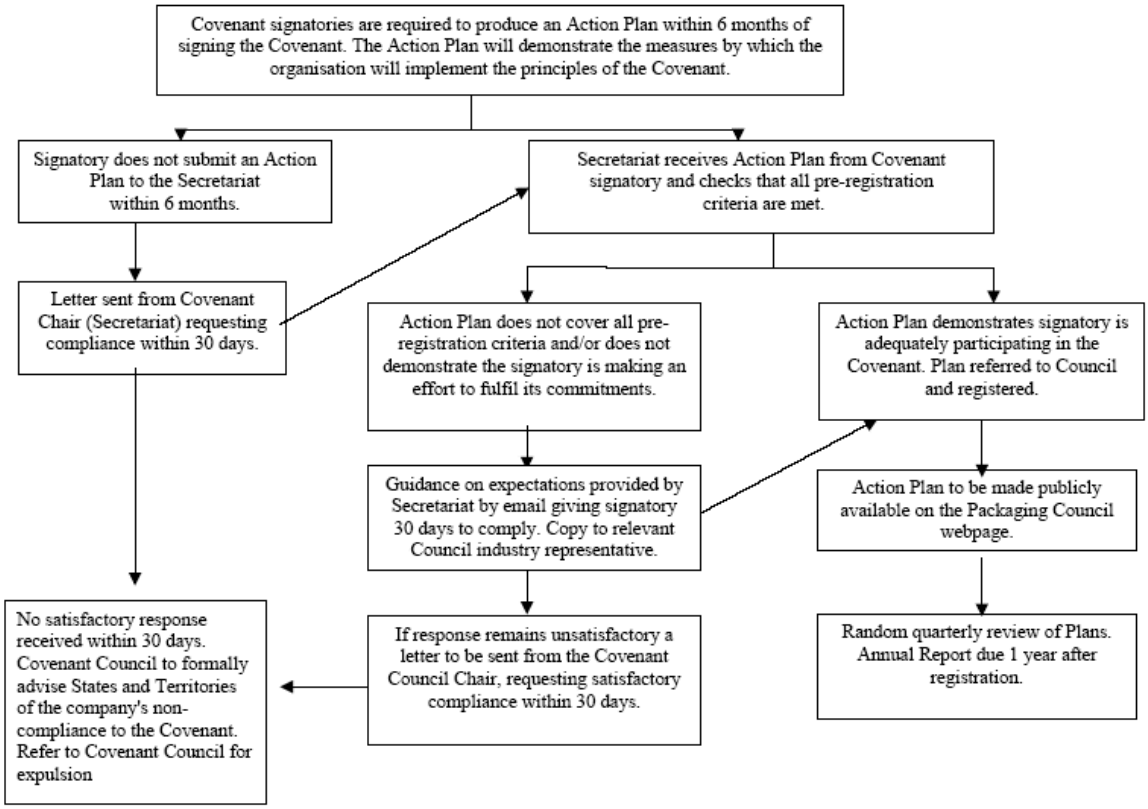


Note: left Y-axis is glass recovery, right Y-axis is glass production
** data on VIC glass recovery was sourced from line of best fit from Table C-6 below.*
** data on NSW glass recovery was sourced from Visy*
** production was sourced from Euromonitor (2003a, 2003d).*

Table C-6: Glass Kerbside Recycling in Victoria ('000 tonnes/year)

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Source
111	110	111	110	158						EcoRecycle (2000)
							99			EcoRecycle (2003)
						100	96			NEPC Annual Report (2001, 2002)
							94			Nolan-ITU (2002)
				103						Grant et al (2001)
						38				EcoRecycle (2002)
111	***110***	***111***	***110***	***103***		***100***	***96***			***LINE OF BEST FIT***

APPENDIX D: ACTION PLAN VALIDATION FLOW CHART



Source: National Packaging Covenant Council (2003)